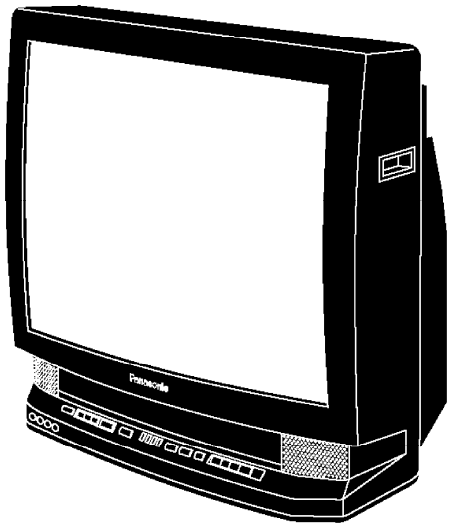
ORDER NO. MKE0101751C1
B6

Service Manual

TV/Hard Disk Recorder Combination

SHOWSTOPPER™

PV-SS2710



SPECIFICATIONS

ITEM	SPECIFICATION	ITEM	SPECIFICATION
Video	Input / Output Level: (Composite): VIDEO IN/OUTPUT Jack (Phono type) 1.0 Vp-p 75 Ω unbalanced (Component): S-VIDEO CONNECTOR (DIN Type 4 pin) Luminance 1.0 Vp-p 75 Ω unbalanced Chrominance 0.63 Vp-p 75 Ω unbalanced Cyanogen (Standard NTSC Color Bar) Burst 0.286 Vp-p, 75 Ω unbalanced	Tuner	Broadcast Channels: VHF 2~13, UHF 14~69 CABLE Channels: Midband A through I (14~22) Superband J through W (23~36) Hyperband AA~EEE (37~64) Lowband A-5~ A-1 (95~99) Special CABLE channel 5A (01) Ultraband 65~94, 100~125
	Signal-to-Noise Ratio: more than 48 dB	Modem	Speed: 56 kbps
	Horizontal Resolution: Color/Monochrome: more than 370 lines	Display	Picture Tube: 27 inch diagonal 100 ° deflection Picture Tube
Audio	Input Level: AUDIO IN Jack (Phono type) -10 dBv 50 kΩ unbalanced Output Level: AUDIO OUTPUT Jack (Phono type) -10 dBv 1 kΩ unbalanced	Power	Source: 120 V AC±12 V AC, 60 Hz±3 Hz
	Frequency Response: 30 Hz-12 kHz		Consumption: Approx. 153 W (Power On), Approx. 16 W (Power Off)
	Signal-to-Noise Ratio: more than 75 dB	Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal
Record	HDD Capacity: 30.4 GB Video compression format: MPEG2 Audio compression format: MPEG1 layer2 Recording level: Extended/ Medium/ High Recording time: 30 h/ 15 h/ 10 h	Operating Condition	5 °C-35 °C (41 °F-95 °F) (Temperature) 10 %-75 % (Humidity)
		Dimension	688 mm x 653 mm x 550 mm (W x H x D)
		Weight	40.5 kg

Weight and dimensions shown are approximate.
Design and specifications are subject to change without notice.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. SAFETY PRECAUTIONS

1.1. GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**
   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer''s specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. **An Isolation Transformer should always be used during the servicing of HDR Combination whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect HDR Combination from being damaged by accidental shorting that may occur during servicing.**
3. **When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**
4. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations are properly installed.**
5. **Before turning the receiver on, measure the resistance between B+ line and chassis ground. Connect (-) side of an ohmmeter to the B+ lines, and (+) side to chassis ground. Each line should have more**

resistance than specified, as follows :

B+ Line

Minimum Resistance

130 V

1 k Ω (Hot chassis ground)

27 V

180 Ω (Cold chassis ground)

17 V

110 Ω (Cold chassis ground)

6. When the TV set is not used for a long period of time, unplug the power cord from the AC outlet.

7. Potentials, as high as 32.0 kV are present when this TV set is in operation. Operation of the TV set without the rear cover involves the danger of a shock hazard from the TV set power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the CRT ground of receiver before handling the tube.

8. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.2. LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.

2. For physically operated power switches, turn power on. Otherwise skip step 2.

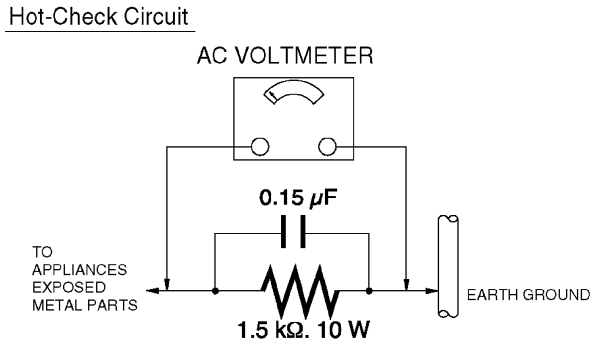
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screwheads, connectors, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 M Ω and 12 M Ω . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

1.3. LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet.
Do not use a isolation transformer for this check.

2. Connect a 1.5 k Ω , 10 W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground , as shown in Figure 1.
3. Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS.
   A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 mA. In case a measurement is outside of the limits specified, there is a possibility of shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

Figure 1



2. X-RADIATION

WARNING:

1. The potential source of X-Radiation in TV sets is the High Voltage section and the picture tube.
2. When using a picture tube test fixture for service, ensure that the fixture is capable of handling 32.0 kV without causing X-Radiation.

NOTE :

It is important to use an accurate periodically calibrated high voltage meter.

1. Reduce the brightness to minimum.
2. Set the SERVICE switch to SERVICE .

3. **Measure the High Voltage. The meter reading should indicate 30.0 kV± 2.0 kV.**
   If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
4. **To prevent an X-Radiation possibly, it is essential to use the specified picture tube.**

HORIZONTAL OSCILLATOR DISABLE CIRCUIT TEST SERVICE WARNING:
The test must be made as a final check before set is returned to the customer.

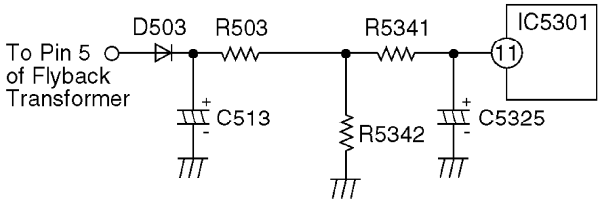
1. **With the rear cover removed, supply about a 120 V AC power source to the set, turn on the set.**
2. **Set the customer controls to normal operating positions.**
3. **Short between TP891 and TP892 on the Main circuit board with a jumper wire. Confirm that the picture goes out of horizontal sync.**
4. **If this does not occur, the horizontal oscillator disable circuit is not operating. Follow the Repair Procedures of horizontal oscillator disable circuit before the set is returned to customer.**

REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

1. **Connect a DC voltmeter between capacitor C513 (+) on the Main circuit board and chassis ground.**
2. **If approximately +21.9 V is not present at that point when 120 V AC is applied, find the cause. Check R503, R5342, C5325, C513 and D503.**
3. **Carefully check above specified parts and related circuits and parts. When the circuit is repaired, try the horizontal oscillator disable circuit test again.**

CIRCUIT EXPLANATION
HORIZONTAL OSCILLATOR DISABLE CIRCUIT
The positive DC voltage, supplied from the D503 cathode for monitoring high voltage, is applied to the IC5301 Pin11 through R503 and R5341. Under normal conditions, the voltage at IC5301 Pin 11 is less than approx 3 V. If the high voltage at Flyback Tr Pin 5 exceeds the specified voltage, the positive DC voltage which is supplied from the D503 cathode also increases. The increased voltage is applied to IC5301 Pin11 through R503 and R5341. Due to the increased voltage at IC5301 Pin11, the horizontal oscillator frequency increases, the picture goes out of horizontal sync, the beam current decreases and the picture becomes dark in order to keep X-radiation under specification.

Figure 2



3. PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors are semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**

CAUTION:

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).**

"NOTE to CATV system installer :

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical."

4. OPERATION GUIDE

5. SERVICE NOTES (PLEASE READ)

5.1. SERVICE NOTES

5.1.1. SERVICE POSITION

5.1.1.1. Service Position

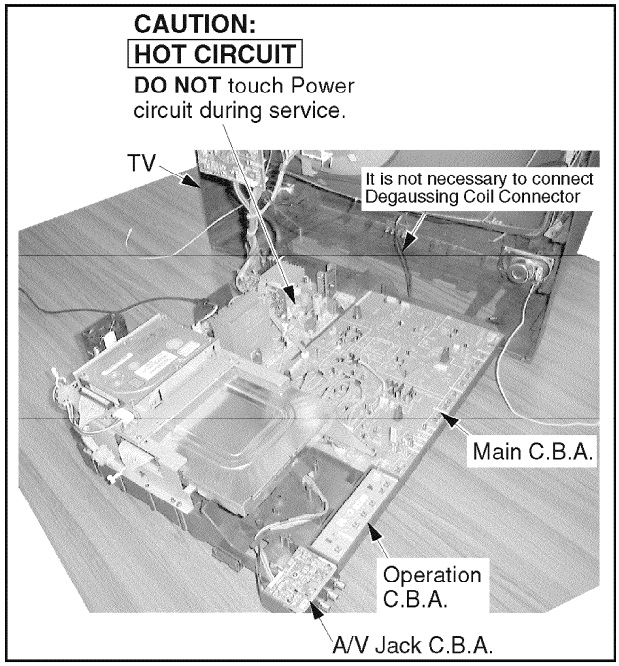
Service Position	Purpose
Service Position (1)	Signal check at wires and TPs Electrical adjustment
Service Position (2)	TV Main C.B.A. check Main C.B.A. check Power Supply C.B.A. check Operation C.B.A. check A/V Jack C.B.A.

CAUTION:

HOT CIRCUIT (Primary circuit) exists on the TV Main C.B.A. and the Power Supply C.B.A. Use extreme care to prevent accidental shock when servicing.

5.1.1.1.1. Service Position (1)

Fig. 1-1-1



Check the signal at the following wires and TPs. / Refer to "Check points and Waveforms for service position (1)."

Fig. 1-1-2

MAIN C.B.A.

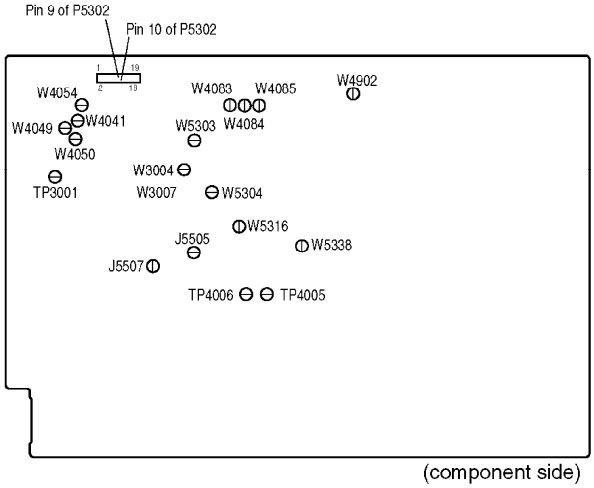
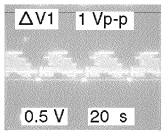
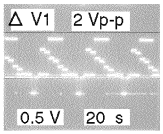
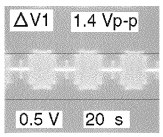
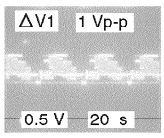
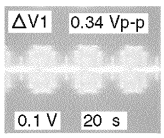
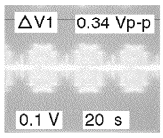
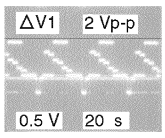
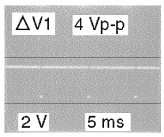
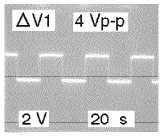
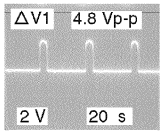
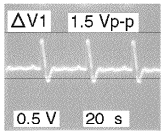
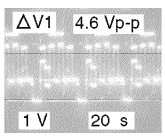
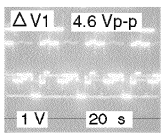
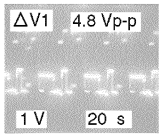
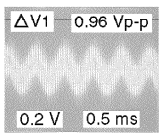
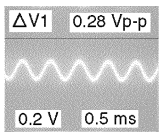
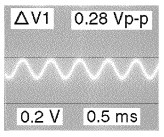
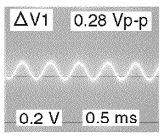


Fig. 1-1-3

Check points and Waveforms for service position (1)

Check Point	Signal Name	Waveform
J5505 (Pin3 of IC5502)	Video Input signal	
W3004 (Q3015 emitter)	HDR-Luma signal	
W3007 (Q3016 emitter)	HDR-Chroma signal	
TP3001	Line Video Output sugnal	
J5507 (Pin13 of IC5501)	Chroma signal (to TV)	
W5338 (Pin36 of IC5301)	Chroma signal (to TV)	
W5316 (Pin41 of IC5301)	Luma signal (to TV)	
W5304 (Pin10 of IC5301)	V pulse	
Pin10 of P5302	H pulse	

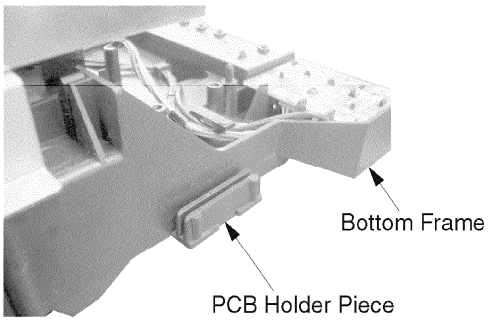
Check Point	Signal Name	Waveform
Pin9 of P5302	AFC signal	
W5303 (Pin18 of IC5301)	Blanking pulse	
W4083 (Pin21 of IC5301)	B signal (to CRT)	
W4084 (Pin21 of IC5301)	G signal (to CRT)	
W4085 (Pin21 of IC5301)	R signal (to CRT)	
W4902 (Pin7 of IC4901)	Tuner Audio signal	
W4054 (Pin1 of IC4902) & W4049 (Pin7 of IC4902)	Tuner Audio L-ch signal & Tuner Audio R-ch signal	
W4041 (Pin5 of IC4003) & W4050 (Pin14 of IC4003)	HDR Audio L-ch signal & HDR Audio R-ch signal	
TP4006 & TP4005	Line Audio L-ch output signal & Line Audio R-ch output signal	

5.1.1.1.2. Service Position (2)

1. Remove the Rear Cover and the TV/Video/Power/HDR Unit. Then, remove the C.B.A.s from the Bottom Frame.

2. Remove the PCB Holder Piece from the Bottom Frame as shown.

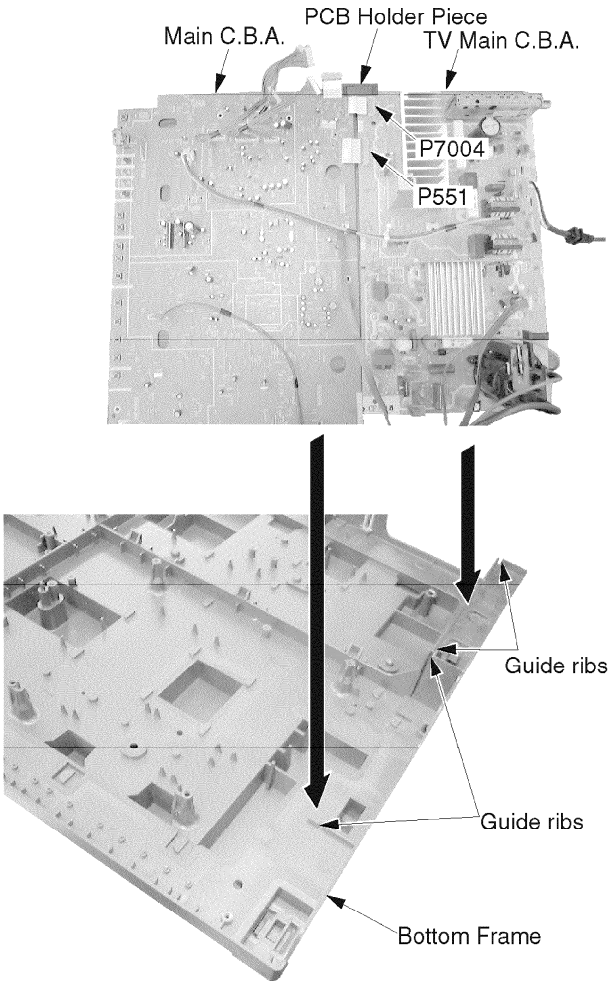
Fig. 1-2-1



3. Place the Main C.B.A. and TV Main C.B.A. on the Table. Then, connect the Connector P7004 and P551.

4. In order to stabilize C.B.A.s, attach the PCB Holder Piece to both C.B.A.s as shown.

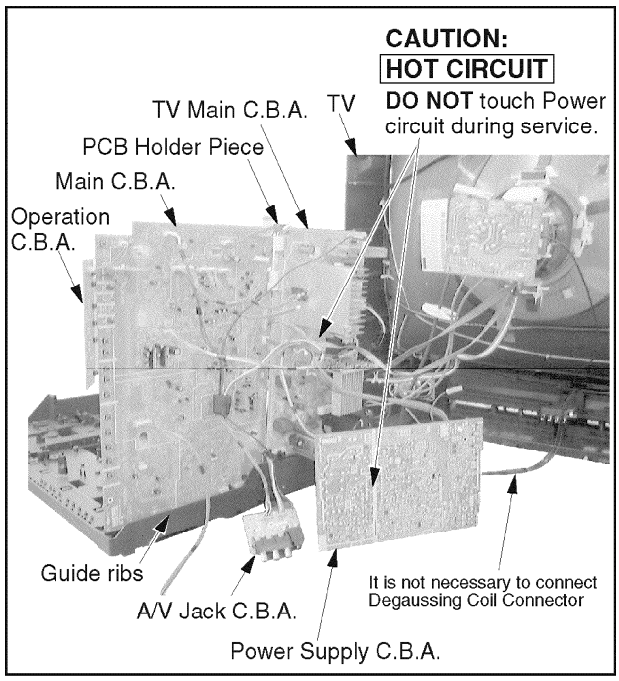
Fig. 1-2-2



5. Place it along with Guide ribs on the Bottom Frame.

Service Position (2)

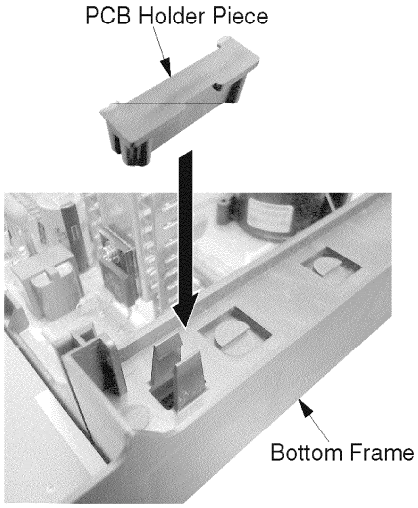
Fig. 1-2-3



Note:

1. **It is only possible to use the LINE3 input terminal (on the A/V Jack C.B.A.) in this position to connect with the Input source.**
2. **After servicing, attach the PCB Holder Piece in the place of the Bottom Frame.**

Fig. 1-2-4



5.1.2. HANDLING PRECAUTIONS FOR HDD

5.1.2.1. CAUTION:

1. **SHOCK**
   A. **Exposing HDD to shock may be the biggest damaging factor. Please note that HDD is easily damaged even if dropped from a small height, such as your finger. Be sure to place HDD on a shock-**

absorbent mat.
Also, be careful when transporting HDD.

B. Be careful not to subject HDD to any shock when tightening screws for HDD replacement.
(Tighten screws manually, not with an electric driver.)

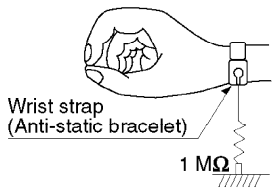
2. MOISTURE

A. Moisture may also be a damaging factor. HDD is semi-closed style. Sudden changes in ambient temperature may cause moisture to form. Monitor temperature and do not allow moisture to form on the media surface. Also, when opening HDD package, do so only after package is at ambient temperature.

3. STATIC ELECTRICITY

A. After removing HDD or taking replacement HDD out of the protective bag (the replacement HDD is packed in a protective bag), place HDD on a conductive surface. An anti-static wrist strap should be worn when handling.

Fig. 2



Both the conductive surface and wrist strap should be grounded. Refer to "PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES."

4. OTHERS

A. Be careful so as not to do the followings.
Otherwise, HDD might be damaged.
- Do NOT disassemble HDD.
- Do NOT peel off a seal on which "WARRANTY VOID, IF SEAL BROKEN" is written affixed to HDD.
- Do NOT remove PCB from HDD.
- Do NOT hold the top or the PCB side when handling HDD. Be sure to hold both sides securely.

B. HDD should be stored, packed in the protective bag, in suitable surroundings (i.e., no extreme changes in temperature to avoid condensation).

C. When transporting HDD, be sure to use the exclusive packing case

(the replacement HDD carton).

5.1.3. HOW TO WATCH THE TV WITHOUT THE HDD AND HDR MAIN C.B.A.

The unit works as a TV after removing the HDD and the HDR Main C.B.A.
When both the HDD and the HDR Main C.B.A. are removed, be sure to disconnect all cables from the HDD (2 Cables) and the HDR Main C.B.A. (9 Cables).
<circuit description>
When disconnecting the Cable between the Connector P6502 on the Main C.B.A. and the Connector P9704 on the HDR Main C.B.A., the SUB MICROCONTROLLER (IC6502) on the Main C.B.A. detects it and the unit works as a TV. (When High at IC6502 pin 52, the unit work as a TV. When Low at IC6502 pin52, the unit work as a HDR.)
How to select TV CH in this condition:
(This is different from normal HDR operation.)

1. **To select TV or CABLE mode, select the desired mode in ANTENNA of SET UP TV menu by pressing the ACTION key on the remote.**
2. **Press the desired Number key (2 digits) on the remote.**

Note:

- **To select CH 100 and above, press CH UP/DOWN key on the remote any number of times.**
- **CH DELETE is NOT functional in this condition.**

5.1.4. BEFORE REPLACING THE HDR MAIN C.B.A

Before replacing the HDR Main C.B.A., verify that the Unit Serial Number that you confirmed when ordering the HDR Main C.B.A. agrees with the Unit Serial Number on the label of the Rear Cover at the user's location.

5.1.5. AFTER REPLACING THE HDD

After replacing the HDD at the user's location, be sure to perform QuickSetup at the user's location. Then, confirm that the unit operates properly.

5.1.6. HOW TO RESET THE HDR COMBINATION

When the TV/HDR Combination does not respond or the screen is frozen, press and hold INPUT and CH DOWN buttons on the front of the TV/HDR Combination together for 10 seconds. The TV/HDR Combination will restart in a few moments.

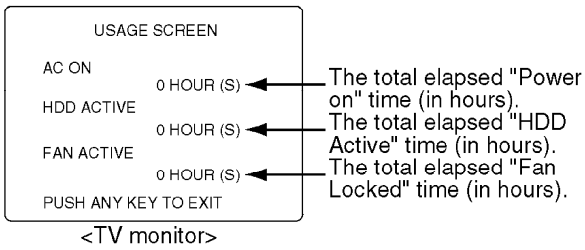
5.1.7. USAGE SCREEN MODE

Function displayed on the TV monitor:

- **the total elapsed "Power on" time (in hours)**
- **the total elapsed "HDD active" time (in hours)**
- **the total elapsed "Fan locked" time (in hours).**

1. **With power turned on, press ACTION key on the remote.**
   The SET UP TV menu will be displayed on the TV Monitor.
2. **In SET UP TV menu, press STOP button on the unit for more than 10 seconds.**
   The USAGE SCREEN will be displayed on the TV Monitor.

Fig. 3


USAGE SCREEN
AC ON
0 HOUR (S)
HDD ACTIVE
0 HOUR (S)
FAN ACTIVE
0 HOUR (S)
PUSH ANY KEY TO EXIT
The total elapsed "Power on" time (in hours).
The total elapsed "HDD Active" time (in hours).
The total elapsed "Fan Locked" time (in hours).
<TV monitor>

Note:

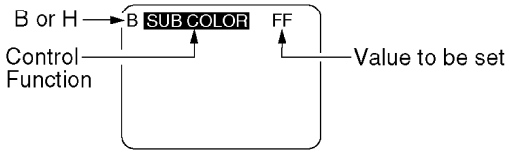
1. **After replacing the HDD, press SELECT button on the unit in this mode. Only Total elapsed "HDD Active" time (in hours) will be cleared to 0.**
2. **FAN ACTIVE displayed on the TV monitor shows the total elapsed "Fan Locked" time (This is a indication error). It can not be cleared to 0.**
3. **To release from Usage Screen Mode, press any operation button on the unit in this mode. The unit will return to normal operation mode.**

5.1.8. HOW TO INITIALIZE MEMORY IC

After the Memory IC (IC6001) or Main C.B.A. is replaced, be sure to set the Memory IC to Default values as shown in "Memory IC Reference Table" below.

1. **Press and hold STOP, VOL -, and EXIT buttons on the unit together over 5 seconds.**
   The adjustment overlay will appear for entering Enter EVR Adjustment mode.

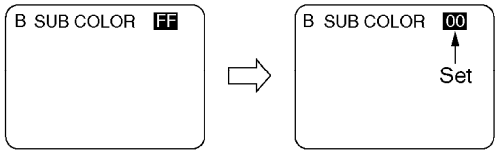
Fig. 4-1



Note:
B: BYPASS mode, H: HDR mode
The Default value of Control functions can be set in either BYPASS mode or HDR mode.

2. **Set the Default value for all Control functions using a remote control as shown in "Memory IC Reference Table."**
   Note:
   For Selecting Control functions and setting Default value, refer to "HOW TO ENTER EVR ADJUSTMENT MODE" in ELECTRICAL ADJUSTMENT procedures.

Fig. 4-2



3. **Press and hold STOP, VOL -, and EXIT buttons on the unit together over 5 seconds again or press the POWER button OFF to release EVR Adjustment Mode.**
   The Default value will be written to Memory IC (IC6001).
4. **Perform all EVR Adjustments. (Refer to "EVR (Electronic Variable Register) ADJUSTMENT WITH THE REMOTE CONTROL" in ELECTRICAL ADJUSTMENT procedures.)**

Memory IC Reference Table

Control functions	Address	Range	Default
SUB COLOR	00	00-3F, C0-FF	**00**
SUB TINT	01	00-1F, E0-FF	**00**
SUB BRIGHT	02	00-3F, C0-FF	**F0**
CONTRAST	03	00, C1-FF	**00**
SUB SHARPNESS	04	00-1F, E0-FF	**00**
R CUT -OFF	05	00-7F	**1E**
G CUT -OFF	06	00-FD	**3C**
B CUT -OFF	07	00-FD	**3C**
G DRIVE	08	00-7F	**40**
B DRIVE	09	00-7F	**40**
SUB CONTRAST	0A	00-0F	**06**
H CENTER	0B	00-0F	**08**
SUB V	0C	00-03	**00**
V SIZE	0D	00-7F	**40**
V POSITION	0E	00-7F	**40**
SUB COLOR HDR	2B	00-3F, C0-FF	**00**
SUB TINT HDR	2C	00-1F, E0-FF	**02**
SUB SHARPNESS HDR	2D	00-1F, E0-FF	**F8**

Note:
1. Address is not displayed on the TV screen.
   Addresses other than those above are not used.

5.1.9. WIRE AND LEAD POSITION DIAGRAM

Fig. 5-1

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note:
No lead wires or flat cables should touch any heating parts or the Heat Sink Plate.
Use extreme care especially for followings.

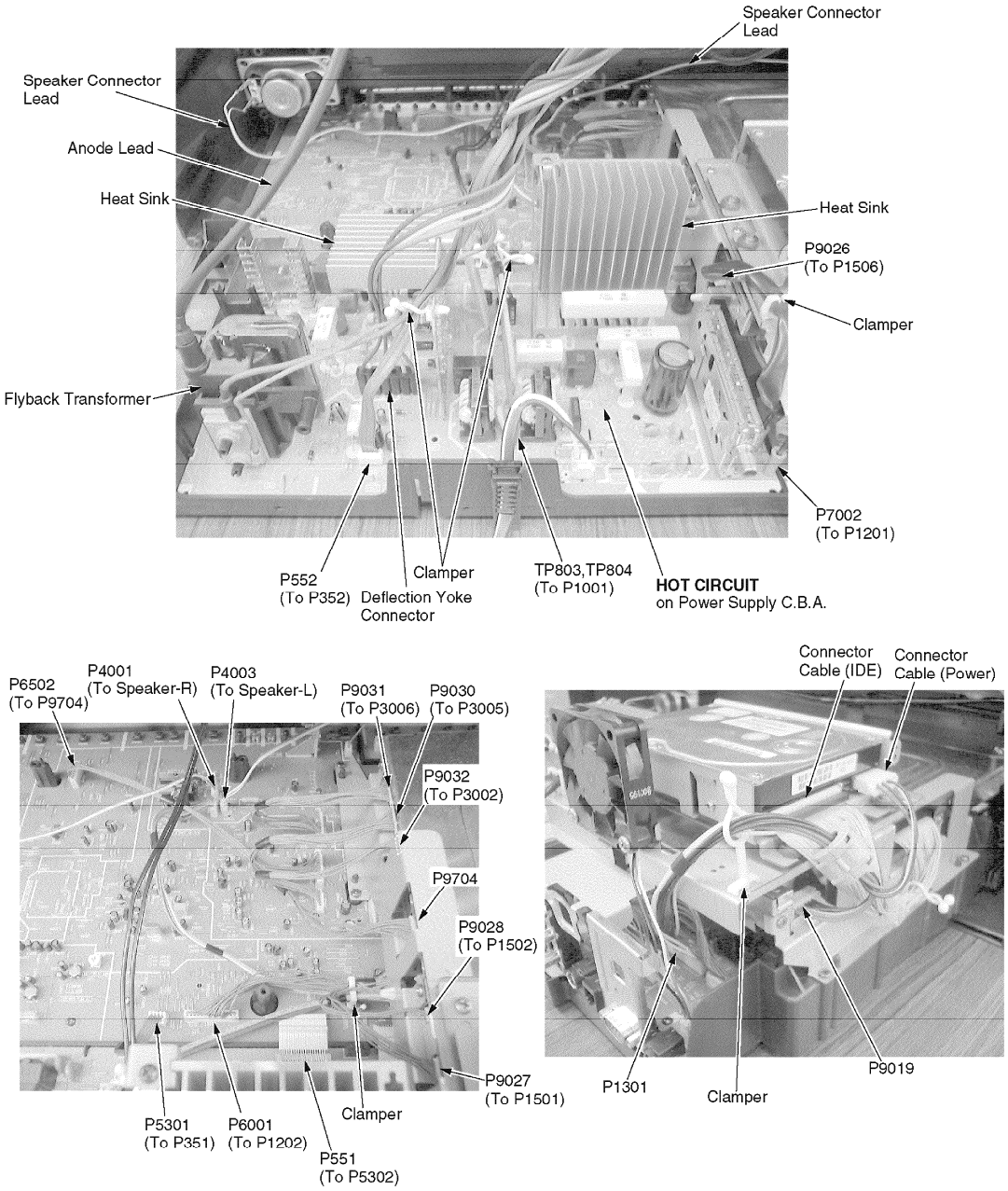
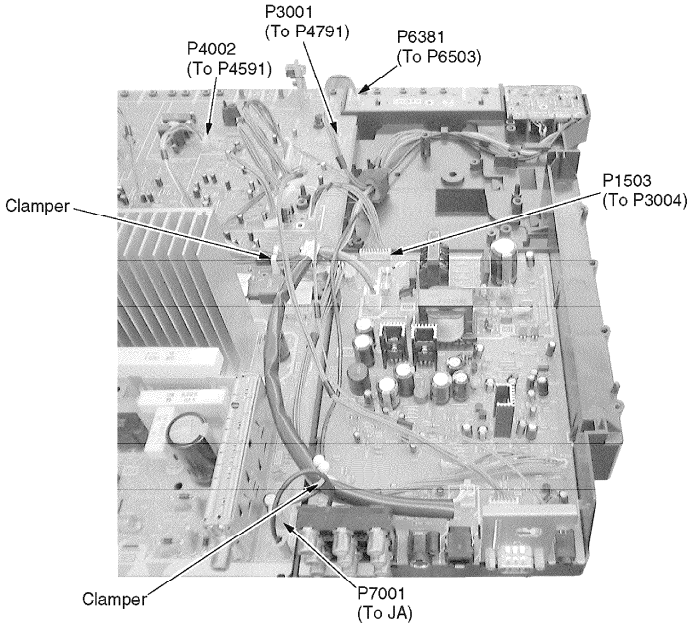


Fig. 5-2

Note:
The following figure shows a condition when the HDD Block is removed.



5.1.10. HOT CIRCUIT

Primary circuit exists on the TV Main C.B.A. and the Power Supply C.B.A.
This circuit is identified as "HOT" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

5.1.11. VARIABLE VOLTAGE ISOLATION TRANSFORMER

An Isolation Transformer should always be used during the servicing of HDR Combination whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect HDR Combination from being damaged by accidental shorting that may occur during servicing. Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

5.1.12. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

5.1.13. REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

The following procedures are recommended for the replacement of the leadless components used in this unit.

1. Preparation for replacement

A. Soldering Iron

Use a pencil-type soldering iron that uses less than 30 W.

B. Solder

Eutectic Solder (Tin 63 %, Lead 37 %) is recommended.

C. Soldering time

Do not apply heat for more than 4 seconds.

D. Preheating

Leadless capacitor must be preheated before installation. -(266 °F ~ 302 °F)
(130 °C ~150 °C) for about two minutes.

Note:

A. Leadless components must not be reused after removal.

B. Excessive mechanical stress and rubbing of the component electrode must be avoided.

2. Removing the leadless component

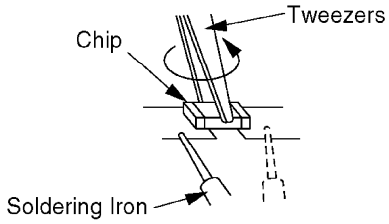
Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.

Note:

A. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.

B. Be careful not to break the copper foil on the printed circuit board.

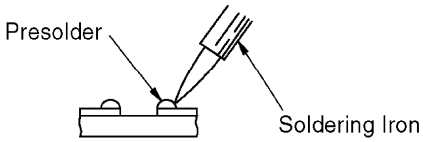
Fig. 6-1



3. Installing the leadless component

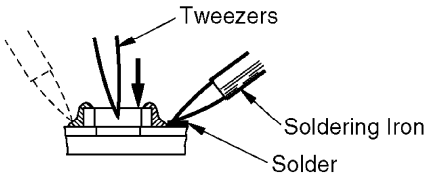
A. Presolder the contact points on the circuit board.

Fig. 6-2



B. Press the part downward with tweezers and solder both electrodes as shown below.

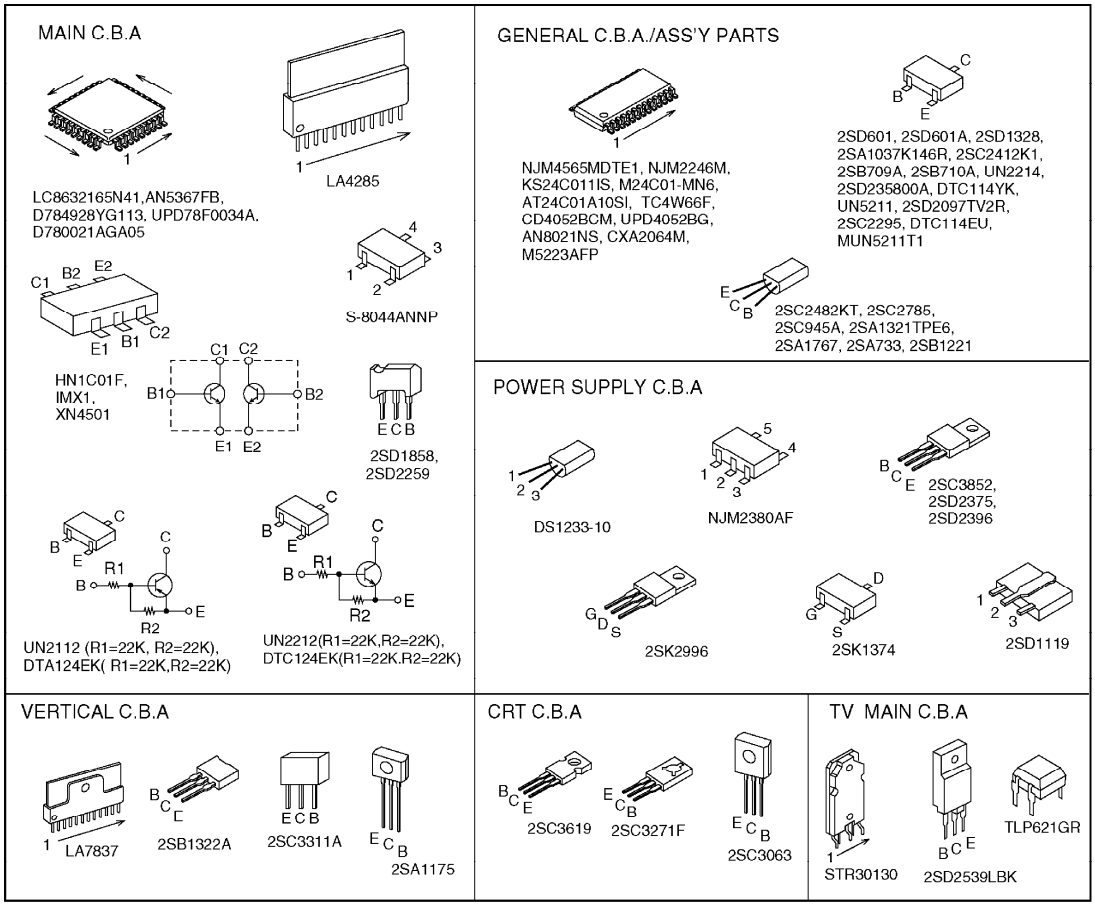
Fig. 6-3



Note:

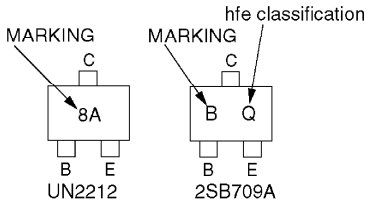
Do not glue the replacement leadless component to the circuit board.

5.2. IC, TRANSISTOR AND CHIP PART INFORMATION

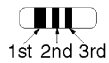


HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

MARKING	PART NO.	MARKING	PART NO.
B	2SB709A	5H	XN4501
F	2SA1037K146R	6B	UN2112
Y	2SD601	8A	UN2212
Z	2SD601A	8B	UN2212
B1	2SC2412K1	15	DTA124EK
X1	IMX1	24	DTC114EU
4V	2SK1374	64	DTC114YK



HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.



The widest color band must be read first for value.

(a) RESISTOR

There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.

1) ERD10LLJ : Refer to above type.
2) ERD10TLJ : The narrow color band must be read first for value.

If this part is included in the parts list, be sure that the color band is read properly when servicing.

(b) CAPACITOR

Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.

CAUTION :

Once chip parts are removed, they must not be reused. Always use a new part when installing a chip part.

6. DISASSEMBLY/ASSEMBLY PROCEDURES

6.1. CABINET SECTION

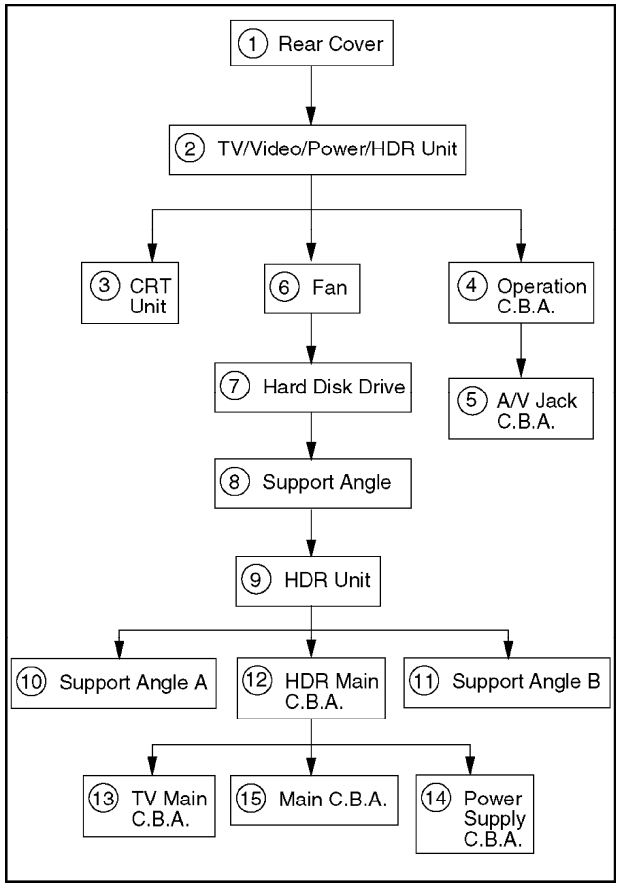
6.1.1. Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:

Disconnect AC plug before disassembly.

Fig. D1



6.1.2. Disassembly Method

STEP /LOC. No.	PART	Fig. No.	REMOVE	Note
①	Rear Cover	D2	12(S-1), 4(S-2)	---
②	TV/Video/Power/ HDR Unit	D2	Anode Cap, P354, CRT C.B.A., Deflection Yoke Connector, Degaussing Coil Connector, P4001, P4003 2 Tabs, 2 Guide Tabs	1
③	CRT Unit	D2	4(S-3)	2
④	Operation C.B.A.	D3	2(L-1), P6381	---
⑤	A/V Jack C.B.A.	D3	(S-4), P3001, P4002, P7001	---
⑥	Fan	D3	2(S-5), P1507	---
⑦	Hard Disk Drive	D3	4(S-6), 4(S-7), P1301, Connector Cable (IDE), Connector Cable (Power), Support Angle, Clampers	3
⑧	Support Angle	D3	6(S-8), Grounding Wire	---
⑨	HDR Unit	D3	4(S-9), P9026, P9027, P9028, P9030, P9031, P9032, P9704	---
⑩	Support Angle A	D3	(S-10), 2(S-11)	---
⑪	Support Angle B	D3	2(S-12)	---
⑫	HDR Main C.B.A.	D3	6(S-13), 36(L-2), 4(L-3) Top Shield Cover Bottom Shield Cover	---
⑬	TV Main C.B.A.	D3	2(S-14), (S-15), 2(L-4), P551,P552, P1001, P7002, P7004, Heat Sink Support Angle, HC Support Angle	---
⑭	Power Supply C.B.A.	D3	3(S-16), P1202, P1503, P1504, 2(L-5)	---
⑮	Main C.B.A.	D3	3(S-17), (L-6)	---

A B C D E

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Part to be removed or installed.
C: Fig. No. showing Procedure or Part Location.
D: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
9(S-1) = 9 Screws (S-1), 6(L-1) = 6 Locking Tabs (L-1), (P-1) = Spring (P-1)
E: Refer to "Notes in chart."

Fig. D2

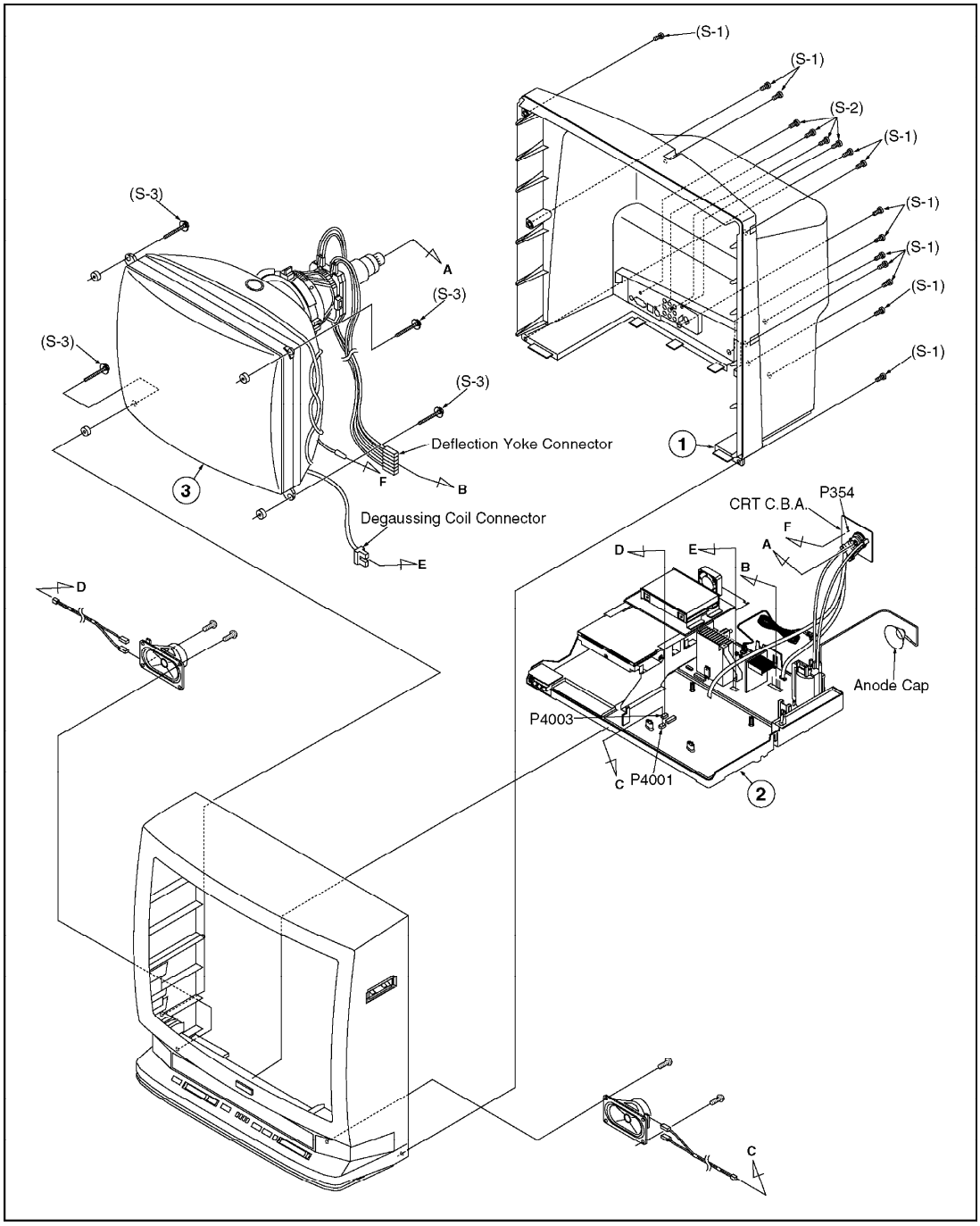
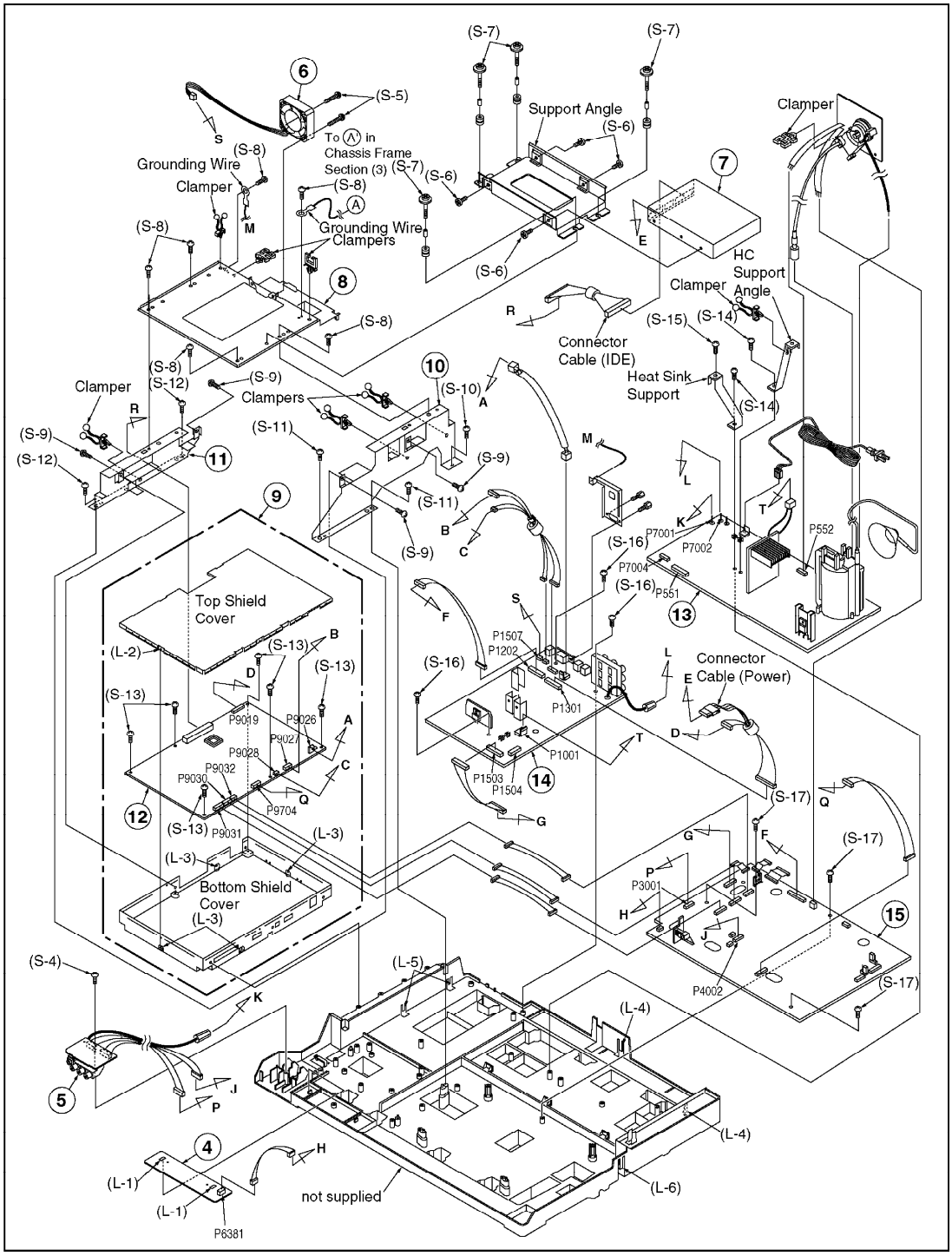

(S-1)
(S-1)
(S-2)
(S-1)
(S-1)
(S-1)
(S-1)
(S-1)
(S-3)
(S-3)
(S-3)
(S-3)
A
Deflection Yoke Connector
F
B
Degaussing Coil Connector
E
1
3
2
CRT C.B.A.
P354
F
A
D
E
B
Anode Cap
P4003
C
P4001
D
C

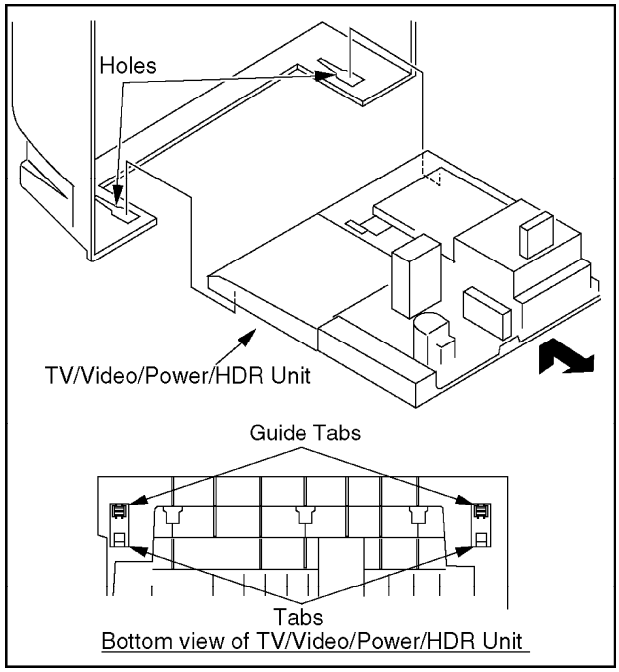
Fig. D3



6.1.2.1. Notes in chart

1. Removal of TV/Video/Power/HDR Unit

Fig. D4



2. Removal of CRT Unit

Place the Unit face down on a soft cloth before removing the CRT Unit.

3. Removal/Installation of Hard Disk Drive

A. Use extreme care when removing or installing the Hard Disk Drive. (Refer to "HANDLING PRECAUTIONS FOR HDD" in "SERVICE NOTES.")

B. When installing 4 Screws (S-6) and 4 Screws (S-7), do not tighten with an electric driver. (Refer to "HANDLING PRECAUTIONS FOR HDD" in "SERVICE NOTES.")

C. It may be hard to disconnect the Connector Cable (IDE) at first. To disconnect the Connector Cable (IDE), pull the Connector Cable (IDE) from the HDD straightly while grasping the Cable. Work carefully so as not to damage the Connector Cable (IDE).

7. ADJUSTMENT PROCEDURES

7.1. ELECTRICAL ADJUSTMENT

NOTE:

Following Adjustments have been preadjusted at factory and are not required.

- Purity Adjustment

- Static Central Convergence Adjustment

- Dynamic Convergence Adjustment

7.1.1. TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
Voltage Range: 0.001 V to 50 V/Div.
Frequency Range: DC to 50 MHz
Probes: 10:1, 1:1

2. NTSC Video Pattern Generator

3. MTS/SAP Signal Generator
(TV Multi-Channel Sound Modulator (U.S.A.))

4. Plastic Tip Driver and Non-Metal Driver

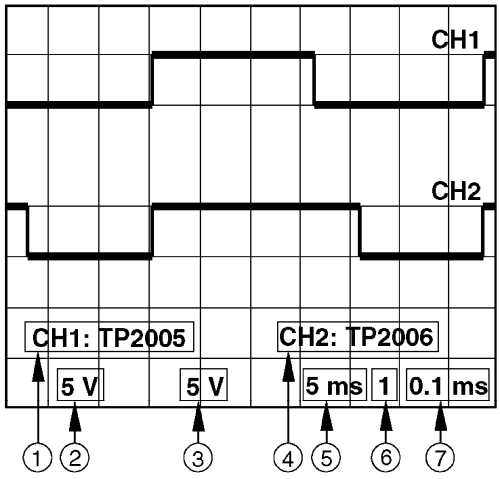
5. Isolation Transformer (Variable)

6. Degaussing Coil

7. White Pattern Generator

7.1.2. HOW TO READ THE ADJUSTMENT PROCEDURES

Fig. E1



1. Connecting Point
3. Volts/DIV
5. Time/DIV
7. Time/DIV for Delay

2. Volts/DIV
4. Connecting Point
6. Trigger Channel of the Scope
1 : CH1
2 : CH2

7.1.3. STEREO/SAP SEPARATION ADJUSTMENT

Purpose:
To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment:
The L and R Channels of Stereo Signal will not be separated properly resulting in no stereophonic effect.

Test Point :
TP4903 (Main C.B.A.)

Adjustment :

R4906, R4914 (Main C.B.A.)

Specification :

minimum level

INPUT :

Antenna Input Terminal
MTS (ONLY L CH)
300 Hz±5 Hz, 3 kHz±5 Hz
14 % or 7 % Modulating

Mode :

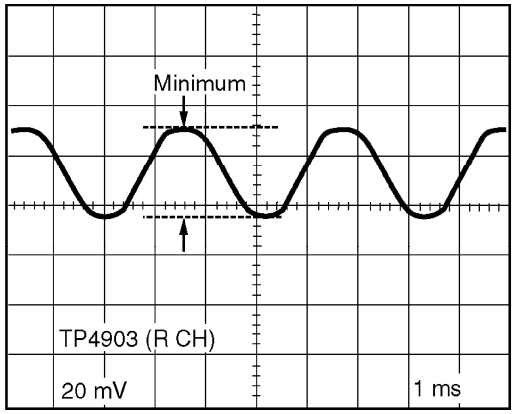
STEREO audio (TV)

Equipment :

Oscilloscope, MTS/SAP Signal Generator

1. **Set to TV mode, and then set to STEREO audio.**
2. **Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.**
   Then, set the MTS/SAP Signal Generator as follows.
   MTS (ONLY L CH)
   300 Hz±5 Hz
   14 % or 7 % Modulating
3. **Connect the Oscilloscope to TP4903 on the Main C.B.A.**
4. **Adjust R4906 (SEP (L)) on the Main C.B.A. so that the signal level of TP4903 is minimum.**
5. **Set the MTS/SAP Signal Generator as follows.**
   MTS (ONLY L CH)
   3 kHz±5 Hz
   14 % or 7 % Modulating
6. **Adjust R4914 (SEP (H)) on the Main C.B.A. so that the signal level of TP4903 is minimum.**

Fig. E2



7.1.4. SEPARATION ADJUSTMENT

Note:

Be sure to perform this adjustment after STEREO/SAP SEPARATION ADJUSTMENT are completed.

Purpose:

To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment:

The L and R Channels of Stereo Signal will not be separated properly resulting in no stereophonic effect.

Test Point :

TP4905 (Main C.B.A.)

Adjustment:

R4902 (Main C.B.A.)

Specification:

minimum level

INPUT :

Antenna Input Terminal
MTS (ONLY L CH)
300 Hz±5 Hz
14 % or 7 % Modulating

Mode :

STEREO audio (TV)

Equipment :

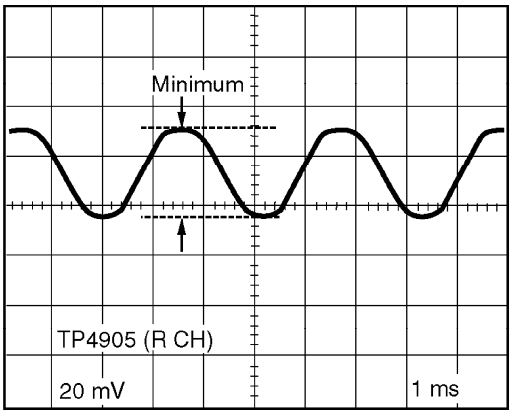
Oscilloscope, MTS/SAP Signal Generator

1. **Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.**
2. **Connect the Oscilloscope to TP4905 (R CH) on the Main C.B.A.**

3. Set to TV mode, and then set to STEREO audio.

4. Adjust R4902 (SEPARATION) on the Main C.B.A. so that the signal level is minimum.

Fig. E3



7.1.5. EVR (Electronic Variable Register) ADJUSTMENT WITH THE REMOTE CONTROL

This unit has electronic technology using I2C Bus concept.

The following control functions are adjusted by using "On Screen Displays" and the remote control instead of adjusting mechanical controls (VR).

Control functions	❖ 1 Address	Range	Default
SUB COLOR	00	00-3F, C0-FF	**00**
SUB TINT	01	00-1F, E0-FF	**00**
SUB BRIGHT	02	00-3F, C0-FF	**F0**
CONTRAST	03	00, C1-FF	00
SUB SHARPNESS	04	00-1F, E0-FF	00
R CUT -OFF	05	00-7F	**1E**
G CUT -OFF	06	00-FD	**3C**
B CUT -OFF	07	00-FD	**3C**
G DRIVE	08	00-7F	**40**
B DRIVE	09	00-7F	**40**
SUB CONTRAST	0A	00-0F	**06**
H CENTER	0B	00-0F	**08**
SUB V	0C	00-03	00
V SIZE	0D	00-7F	**40**
V POSITION	0E	00-7F	**40**
SUB COLOR HDR	2B	00-3F, C0-FF	00
SUB TINT HDR	2C	00-1F, E0-FF	02
SUB SHARPNESS HDR	2D	00-1F, E0-FF	F8

Bold-faced letters ➙ Control functions which need to be adjusted.

Note:
❖ 1 Address is not displayed on the TV screen.
Other Addresses except above are not used.

7.1.6. EVR ADJUSTMENT ITEM

The following Items need to be adjusted for EVR adjustment.

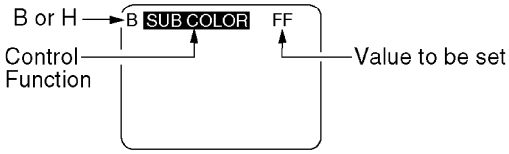
- SUB CONTRAST ADJUSTMENT
- CUT OFF, DRIVE ADJUSTMENT
- SUB COLOR/SUB TINT ADJUSTMENT
- V. HEIGHT/H. POSITION ADJUSTMENT
- WHITE BALANCE ADJUSTMENT
- SUB BRIGHTNESS ADJUSTMENT

7.1.7. HOW TO ENTER EVR ADJUSTMENT MODE

Press and hold STOP, VOL -, and EXIT buttons on the unit together over 5 seconds.

The adjustment overlay will appear to enter EVR adjustment mode.

Fig. E4-1



Note:
B: BYPASS mode, H: HDR mode
The Default value of Control functions can be set in either BYPASS mode or HDR mode.

7.1.7.1. How to adjust:

www.manualscenter.com

1. Press UP/DOWN key on the remote control to select control function to be adjusted.

Important Note:
Make a note of the original value of the controls before modifying in case the wrong control is adjusted.

2. Press RIGHT/LEFT key on the remote control so that the shaded area moves to the value.

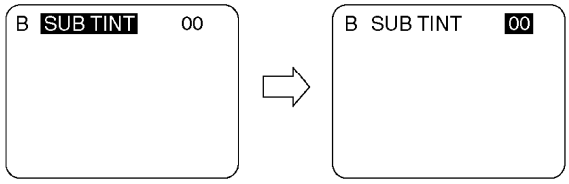


Fig. E4-2

3. Press UP/DOWN key on the remote control to adjust the value of the selected control.

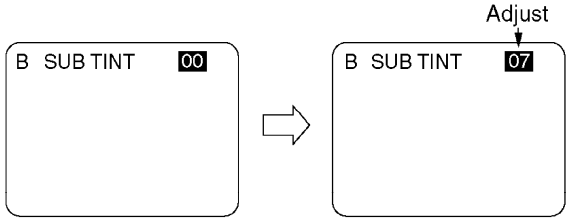


Fig. E4-3

Note:
You can select a desired channel by using the numbered keys on the remote control in EVR adjustment mode.

4. Press RIGHT/LEFT key on the remote control so that the shaded area moves to the control function.

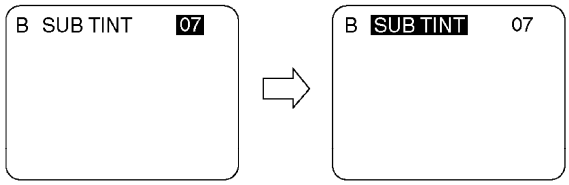


Fig. E4-4

5. Press UP/DOWN key on the remote control to select a control function for the next adjustment if necessary.

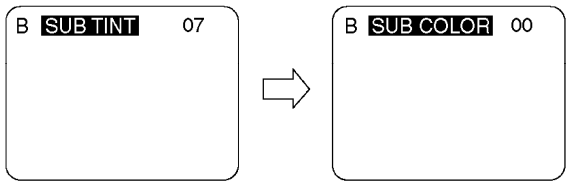


Fig. E4-5

7.1.7.2. How to release from EVR Adjustment Mode:

Press and hold STOP, VOL-, and EXIT buttons on the unit together over 5 seconds again or press the POWER button OFF. The adjusted value will be written to Memory IC (IC6001).

7.1.8. HOW TO ENTER SERVICE MODE

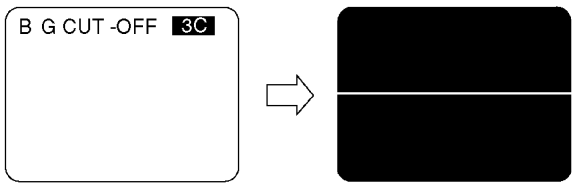
1. Enter EVR adjustment mode.

2. Press DISPLAY key on the remote control for collapse scan.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value for adjustments you will proceed.

Fig. E4-6



7.1.8.1. How to release from Service Mode:

Press DISPLAY key again on the remote control.

7.1.9. SUB CONTRAST ADJUSTMENT

Purpose:

To set the optimum sub contrast level.

Symptom of Misadjustment:

The picture is too dark or too light.

Test Point :

Pin 5 of P5300 (Main C.B.A.)
or TP49 (CRT C.B.A.)

Adjustment :

SUB CONTRAST (EVR)

Specification :

3.0 V[p-p]±0.1 V[p-p]

Input :

Video Input Jack,
Crosshatch Pattern Signal 1 V[p-p]
(75 Ω terminated)

Mode :

STOP

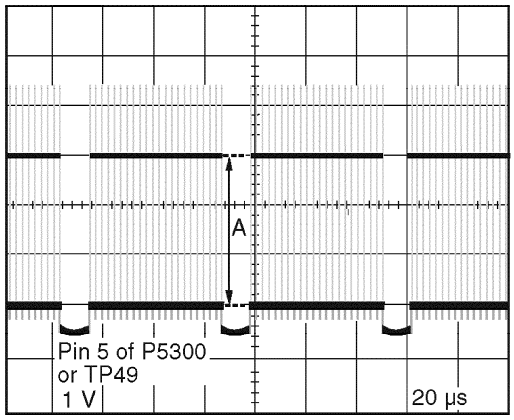
Equipment :

Oscilloscope,
NTSC Video Pattern Generator

1. **Supply a Crosshatch Pattern Signal to the Video Input Jack.**
2. **Connect the Oscilloscope to Pin 5 of P5300 on the Main C.B.A. or TP49 on the CRT C.B.A.**

3. **Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the (D0).**
4. **Select SUB CONTRAST in EVR adjustment mode and adjust so that the level A is 3.0 V[p-p]±0.1 V[p-p].**
5. **Select SUB BRIGHT in EVR adjustment mode and reset to the original value.**

Fig. E5



7.1.10. FOCUS, SCREEN, CUT OFF, DRIVE ADJUSTMENT

Purpose:

To set the optimum Focus and Screen.

Symptom of Misadjustment:

The picture is out of Focus and there will be an improper screen color mix.

Test Point :

TP50 (CRT C.B.A.)

Adjustment :

FOCUS CONTROL (Flyback Transformer),
SCREEN CONTROL (Flyback Transformer),
SUB BRIGHT (EVR),
G DRIVE (EVR),
B DRIVE (EVR),
B CUT -OFF (EVR),
G CUT -OFF (EVR),
R CUT -OFF (EVR)

Specification :

Refer to descriptions below.

Input :

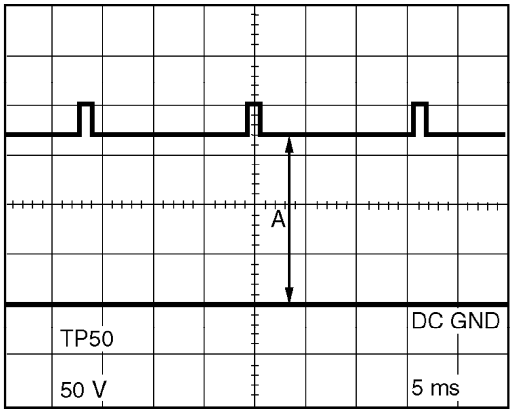
Video Input Jack,
Monoscope Pattern Signal

Mode :
STOP

Equipment :
Oscilloscope,
NTSC Video Pattern Generator

1. **Supply a Monoscope Pattern Signal to the Video Input Jack.**
2. **Connect the Oscilloscope to TP50 on the CRT C.B.A. (Use TP47 for GND.)**
3. **Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.**
4. **Adjust the FOCUS CONTROL on the Flyback Transformer so that the center of picture is the sharpest.**
5. **Turn the SCREEN CONTROL on the Flyback Transformer fully counterclockwise.**
6. **Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to HOW TO ENTER SERVICE MODE.)**
7. **Adjust SUB BRIGHT in EVR adjustment mode so that the level A is 185 VDC±5 VDC.**

Fig. E6



8. **Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.**
9. **In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (B CUT -OFF, G CUT -OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white. For example, if the horizontal line appeared red in step 8, select and**

adjust the B CUT -OFF and G CUT -OFF.

10. Press DISPLAY key on the remote control again to return for full frame scan.
11. Select SUB BRIGHT in EVR adjustment mode and adjust so that the picture has adequate brightness.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

7.1.11. SUB COLOR/SUB TINT ADJUSTMENT

Purpose :

To set the standard color phase.

Symptom of Misadjustment :

Color phase will be shifted.

Test Point :

Pin 5 of P5300 (Main C.B.A.)
or TP49 (CRT C.B.A.)

Adjustment :

SUB COLOR (EVR),
SUB TINT (EVR)

Specification :

C = 1.50 V[p-p]±0.15 V[p-p]

Input :

Video Input Jack, Rainbow Color Bar

Mode :

STOP

Equipment :

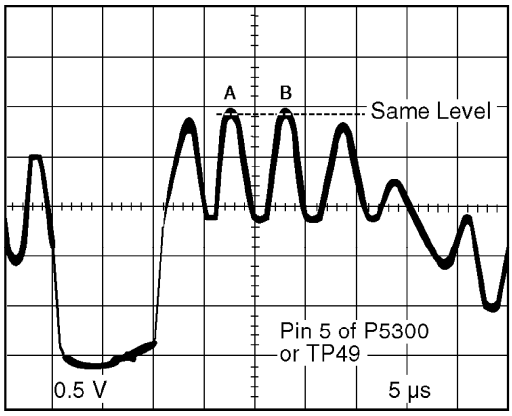
Oscilloscope, NTSC Video Pattern Generator

1. Supply the Rainbow Color Bar signal to Video Input Jack.
2. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0).
3. Connect the Oscilloscope to Pin 5 of P5300 on the Main C.B.A. or TP49

on the CRT C.B.A.

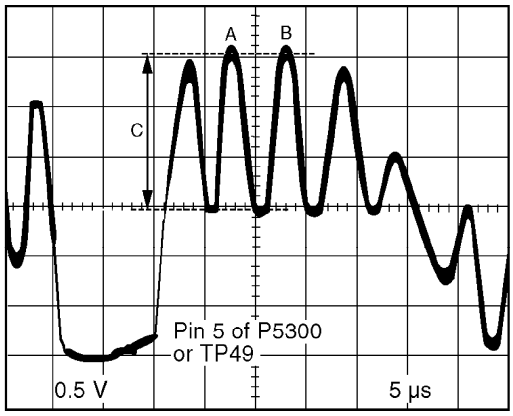
4. Select SUB TINT in EVR adjustment mode and adjust so that level A and B should be equal in amplitude.

Fig. E7-1



5. Select SUB COLOR in EVR adjustment mode and adjust so that the level C is 1.50 V[p-p]±0.15 V[p-p].

Fig. E7-2



6. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

7.1.12. V. HEIGHT/H. POSITION ADJUSTMENT

Purpose :

To set the standard vertical and horizontal picture size.

Symptom of Misadjustment :

The picture size is on the vertical and horizontal axis is abnormal.

Test Point :

Adjustment :

V SIZE (EVR),
H CENTER (EVR),

V POSITION (EVR)

Specification :

Refer to descriptions below.

Input :

Video Input Jack,
Monoscope Pattern Signal

Mode :

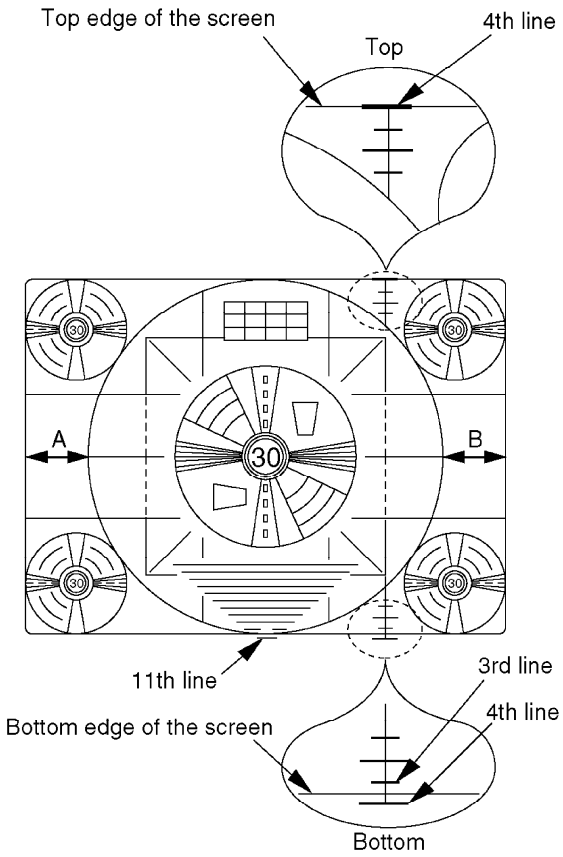
STOP

Equipment :

NTSC Video Pattern Generator

1. **Supply a Monoscope Pattern Signal to the Video Input Jack.**
2. **Select H CENTER in EVR adjustment mode and adjust so that A is approximately equal to width B.**
3. **Select V SIZE in EVR adjustment mode and adjust so that the top 4th line is just in view.**
4. **Confirm that the bottom 3rd line is in view and that the bottom 4th line is out of view.**
   If the line are not positioned correctly, select V POSITION in EVR adjustment mode and adjustment correctly.

Fig. E8



7.1.13. WHITE BALANCE ADJUSTMENT

Purpose:

To set the standard white level for each color temperature.

Symptom of Misadjustment :

White becomes bluish or reddish.

Test Point :

TP50 (CRT C.B.A)

Adjustment :

FOCUS CONTROL (Flyback Transformer),
SCREEN CONTROL (Flyback Transformer),
SUB BRIGHT (EVR),
G DRIVE (EVR),
B DRIVE (EVR),
R CUT -OFF (EVR),
G CUT -OFF (EVR),
B CUT -OFF (EVR),

Specification :

Refer to descriptions below.

Input :

Video Input Jack,
Monoscope Pattern Signal,
White Pattern Signal

Mode :

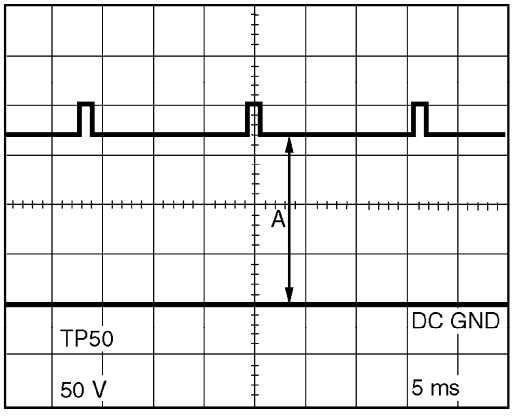
STOP

Equipment :

NTSC Video Pattern Generator,
White Pattern Generator,
Oscilloscope

1. **Supply a Monoscope Pattern Signal to the Video Input Jack.**
2. **Connect the Oscilloscope to TP50 on the CRT C.B.A. (Use TP47 for GND.)**
3. **Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.**
4. **Adjust the FOCUS CONTROL on the Flyback Transformer so that the center of picture is the sharpest.**
5. **Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to How to Enter Service Mode.)**
6. **Turn the SCREEN CONTROL on Flyback Transformer fully counterclockwise.**
7. **Adjust SUB BRIGHT in EVR adjustment mode so that the level A is 185 VDC±5 VDC.**

Fig. E9



8. **Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.**

9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (B CUT -OFF, G CUT -OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white. For example, if the horizontal line appeared red in step 8, select and adjust the B CUT -OFF and G CUT -OFF.
10. Supply a White Pattern Signal to the Video Input Jack.
11. Press DISPLAY key on the remote control again to return for full frame scan.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.
13. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0) and while turning SUB BRIGHT value from minimum (C0) up to maximum (3F), confirm that the screen is tracking the White Pattern properly. Repeat the above steps 5, 9, 11, and 12 until the screen is properly tracking the White Pattern.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

7.1.14. SUB BRIGHTNESS ADJUSTMENT

Purpose :

To set the optimum brightness level.

Symptom of Misadjustment :

The picture is too white or too black.

Note:

Perform this adjustment in a darkened room.

Test Point :

Adjustment :

SUB BRIGHT (EVR)

Specification :

Refer to descriptions below.

Input :

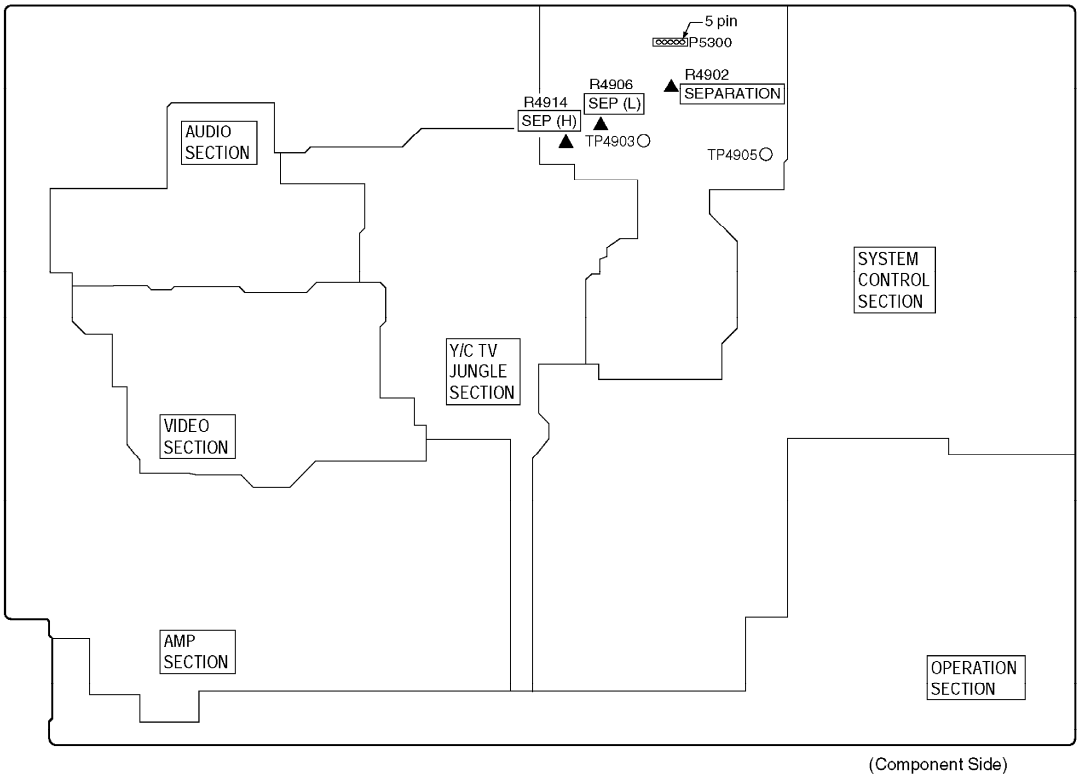
Mode :

STOP

1. **Do not input any signal to the unit.**
2. **Set INPUT SELECT item to LINE in SET UP TV menu to display black screen.**
3. **Select SUB BRIGHT in EVR adjustment mode, and adjust so that the black screen starts to turn grey (lighting only).**

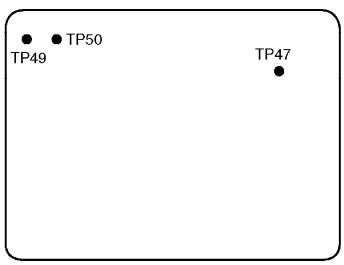
7.2. TEST POINTS AND CONTROL LOCATION

Main C.B.A.



(Component Side)

CRT C.B.A.



(Foil Side)

8. SCHEMATIC DIAGRAMS

8.1. SCHEMATIC DIAGRAMS AND CIRCUIT BOARD LAYOUT NOTES

8.2. MAIN / INFRARED / OPERATION SCHEMATIC DIAGRAMS

8.3. POWER SUPPLY SCHEMATIC DIAGRAMS

8.4. TV MAIN SCHEMATIC DIAGRAM

8.5. VERTICAL SCHEMATIC DIAGRAM

8.6. AUDIO/VIDEO JACK SCHEMATIC DIAGRAM

8.7. CRT SCHEMATIC DIAGRAM

8.8. INTERCONNECTION SCHEMATIC DIAGRAM

8.9. I/O CHART OF EACH CONNECTOR BETWEEN MAIN C.B.A./POWER SUPPLY C.B.A. AND HDR MAIN C.B.A.

8.10. VOLTAGE CHART

9. CIRCUIT BOARD LAYOUT

9.1. MAIN C.B.A.

9.2. POWER SUPPLY C.B.A.

9.3. TV MAIN C.B.A.

9.4. VERTICAL / AUDIO/VIDEO JACK / CRT / OPERATION C.B.A.

10. BLOCK DIAGRAMS

10.1. OVERALL BLOCK DIAGRAM

10.2. POWER SUPPLY BLOCK DIAGRAM

10.3. VIDEO SIGNAL PATH BLOCK DIAGRAM

10.4. AUDIO SIGNAL PATH BLOCK DIAGRAM

10.5. TV Y/C PROCESS BLOCK DIAGRAM

10.6. SYSTEM CONTROL BLOCK DIAGRAM

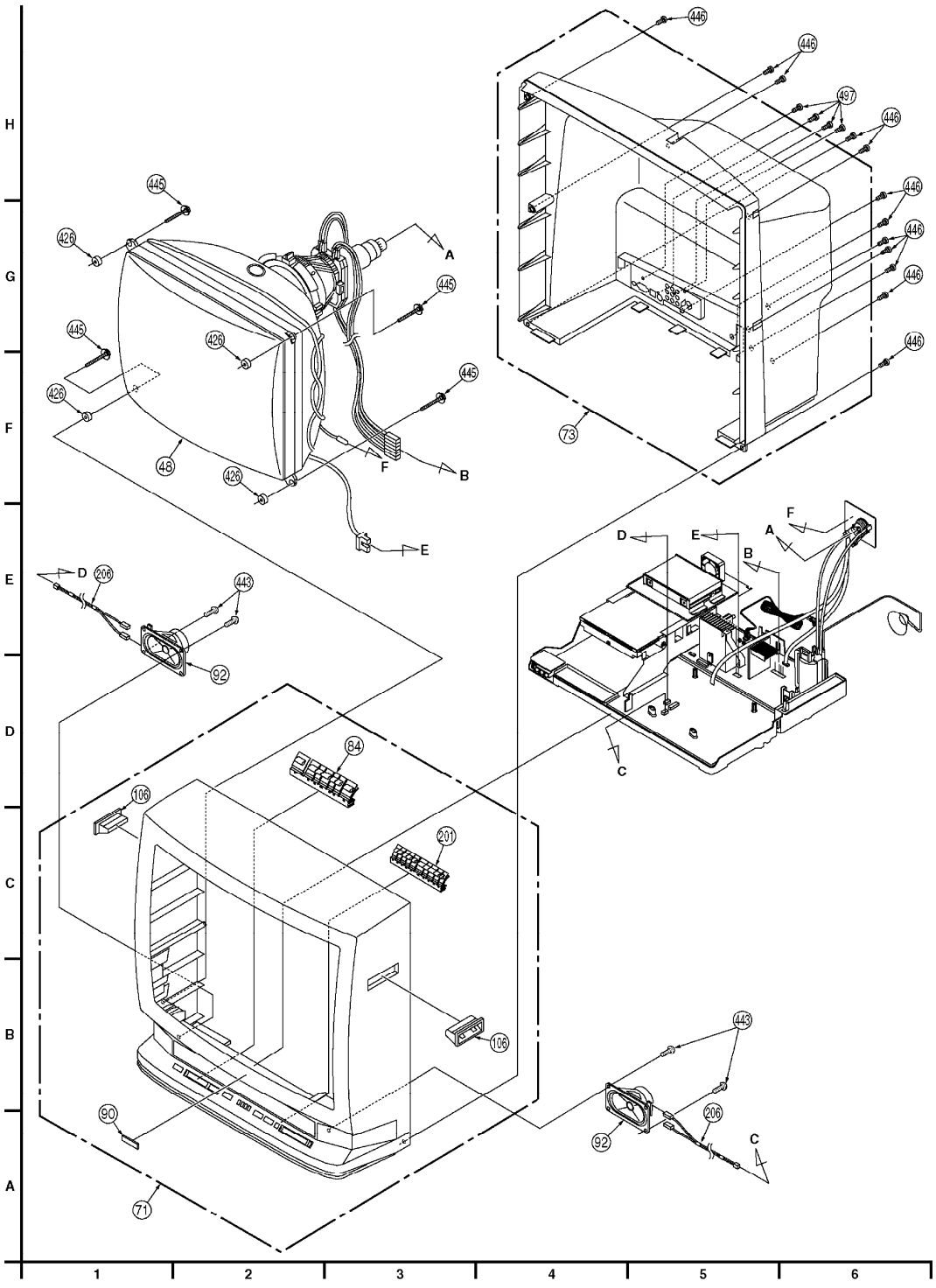
11. TROUBLESHOOTING HINTS

12. EXPLODED VIEWS

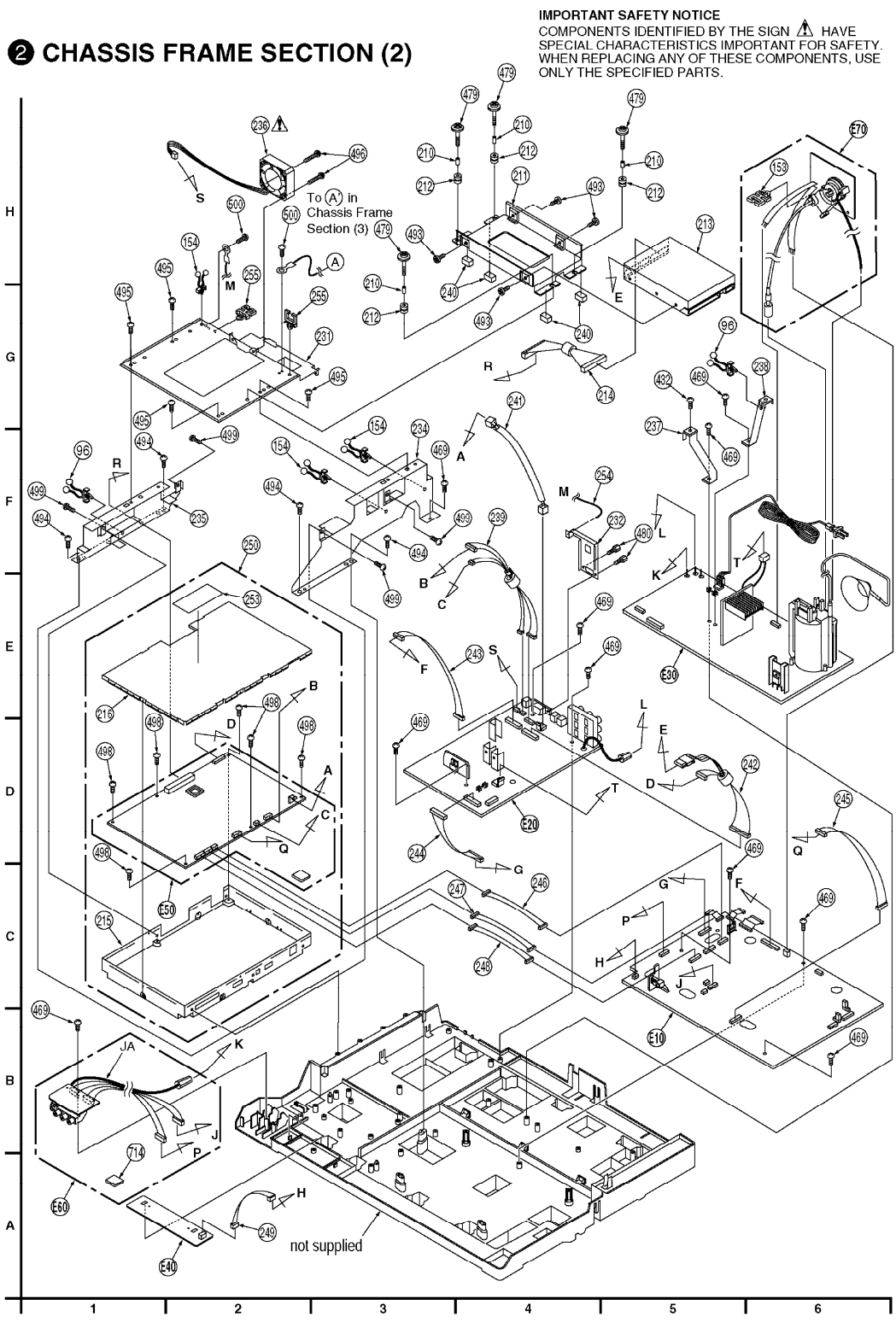
12.1. CHASSIS FRAME SECTION(1)

Note: Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

❶ CHASSIS FRAME SECTION (1)



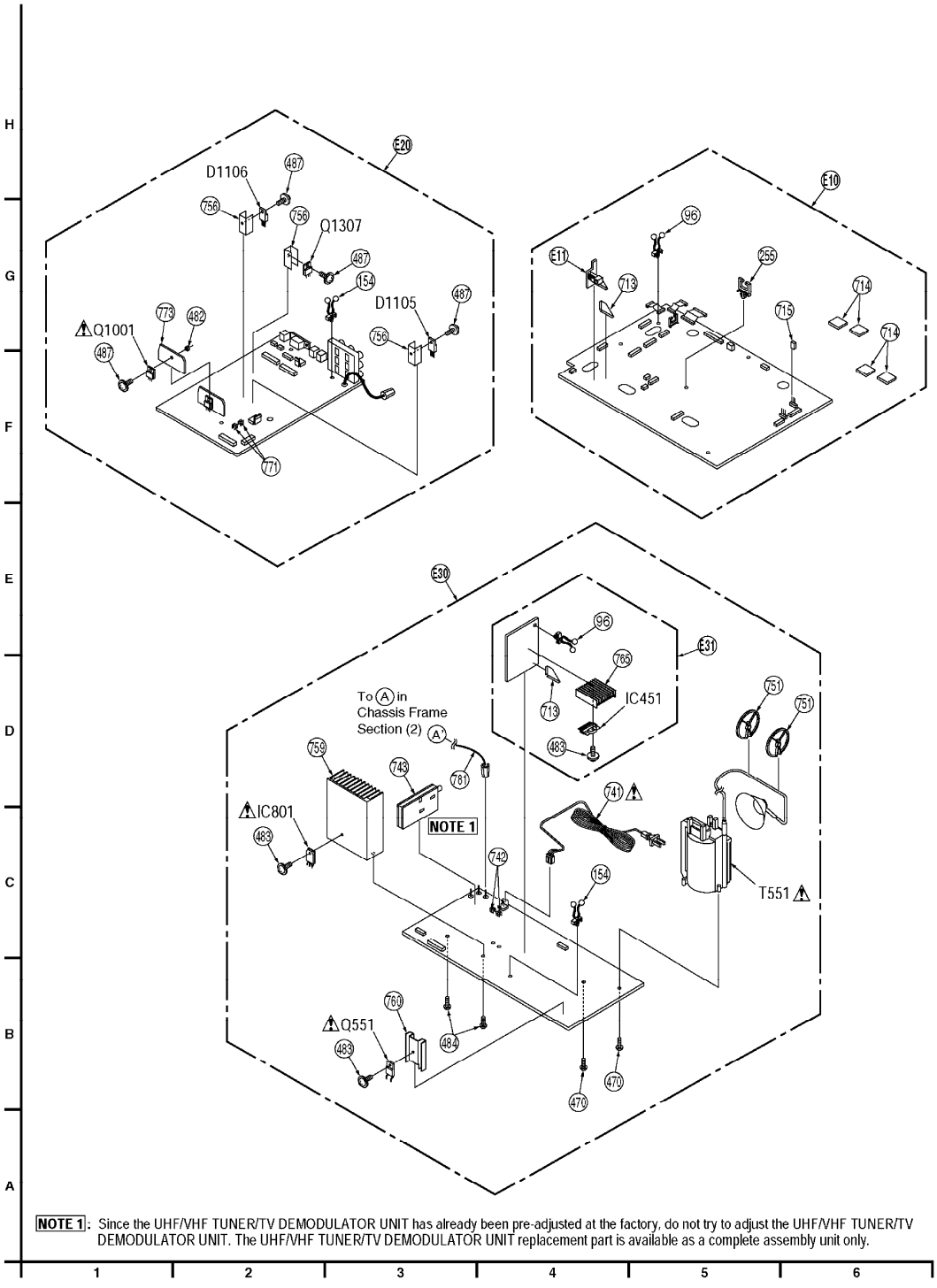
12.2. CHASSIS FRAME SECTION(2)



12.3. CHASSIS FRAME SECTION(3)

❸ CHASSIS FRAME SECTION (3)

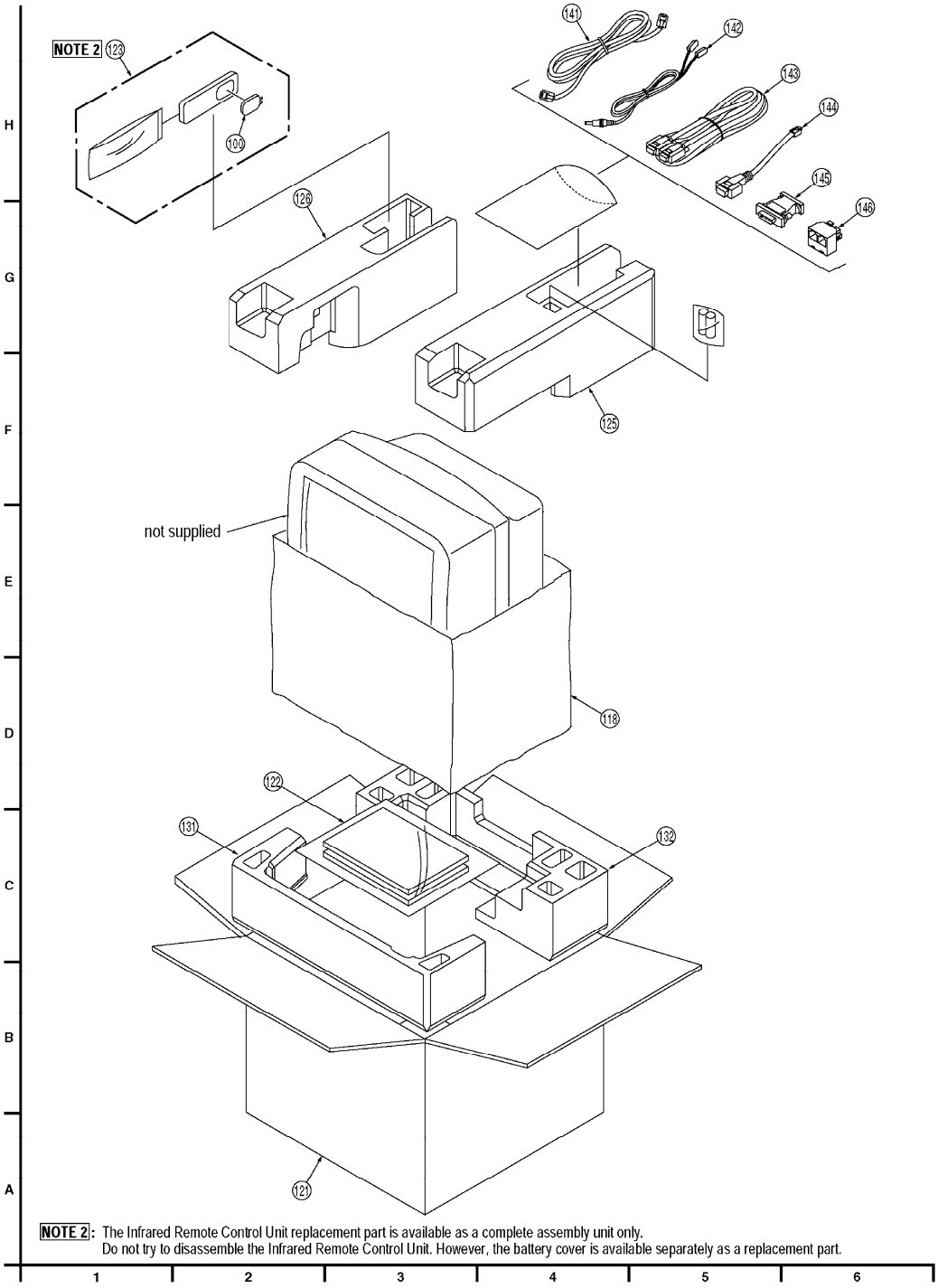
IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



NOTE 1: Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

12.4. PACKING PARTS AND ACCESSORIES SECTION

❹ PACKING PARTS AND ACCESSORIES SECTION



NOTE 2: The Infrared Remote Control Unit replacement part is available as a complete assembly unit only.
Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

13. REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

13.1. REPLACEMENT NOTES

13.1.1. General Notes

1. Use only original replacement parts:

To maintain original function and reliability of repairedunits, use only

original replacement parts which arelisted with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. **SPECIAL NOTE**
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described underthe "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.
4. **Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.**
5. **Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.**
6. **Parts with mark "MKA" in Remarks column are supplied from MKA. Others are supplied from MKE.**
7. **Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.**

13.1.2. Mechanical Replacement Notes

1. **Section No. of parts shown in Exploded Views are indicated in the Remarks column.**
2. **The Infrared Remote Control Unit (Ref. No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.**
3. **After replacing the Top Shield Cover (Ref. No. 216), be sure to put the Caution Label (Ref. No. 253) on it.**

13.1.3. Electrical Replacement Notes

1. **Unless otherwise specified;**
   All resistors are in W, 1/4 W, carbon, K = 1,000 Ω,
   M = 1,000 k Ω.
   All capacitors are in μF, P = μμF.

All coils are in μH, M = 1,000 μH.

2. Abbreviation

RTL:
Retention Time Limited
This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

NR:
Non Repairable Board Ass'y

MGF CHIP:
Metal Glaze Film Chip

C CHIP:
Ceramic Chip

COMPLX CMP:
Complex Component

W FLMPRF:
Wirewound Flameproof

C.B.A.:
Circuit Board Assembly

P.C.B.:
Printed Circuit Board

E.S.D.:
Electrostatically Sensitive Devices

3. SERVICE OF CHIP PARTS
When servicing chip parts, please use a soldering iron of less than 30 W. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.

4. When replacing 0 Ω resistor, a wire can be substituted for it.

5. Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref. No. 743) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

6. EEP ROM IC (IC6001), MAIN C.B.A. replacement note: / After replacing EEP ROM IC (IC6001) or MAIN C.B.A., be sure to write the initial data

with remote control.

7. D1010 and D1011 replacement note:
Although D1010 and D1011 have Ref. No. for diode,they are ICs.

13.2. MECHANICAL REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks
48	LXQVB01279	PICTURE TUBE UNIT	1 MKA
71	LSYK0477	FRONT CABINET ASS'Y	1 MKA
73	LSYF0434	REAR COVER UNIT	1 MKA
84	LSGU0164	OPERATION BUTTON A	1 MKA
90	TBM173052	BADGE,ABS RESIN	1
92	LAS5F47CRA	SPEAKER	1 MKA
96	TMM7464-1	CLAMPER	2,3
100	VKFS2235	BATTERY COVER	4
106	LSKH0052	HANDLE	1 MKA
118	LPE64005A	BAG,POLYETHYLENE	4 MKA
121	LSPG0894	PACKING CASE,PAPER	4 MKA
122	LSQF0288	FAN BAG	4 MKA
123	LSSQ0247	INFRARED REMOTE CONTROL UNIT	4 MKA
125	LSPN0125	TOP CUSHION RIGHT,STYROFOAM	4 MKA
126	LSPN0124	TOP CUSHION LEFT,STYROFOAM	4 MKA
131	LSPN0126	BOTTOM CUSHION FRONT,STYROFOAM	4 MKA
132	LSPN0127	BOTTOM CUSHION REAR,STYROFOAM	4 MKA
141	LSJA0323	TELEPHONE CORD,DC 48V	4 MKA
142	LSJA0324	IR BLASTER	4 MKA
143	LSJA0325	SERIAL CABLE,DC 15V	4 MKA
144	LSJA0326	RJH TO 9-PIN ADAPTOR	4 MKA
145	LSJA0327	9 TO 15-PIN ADAPTOR	4 MKA
146	LSJJ0174	TELEPHONE SPLITTER	4 MKA
153	TMM7443-1	CLAMPER	2
154	TMM5439-1	CLAMPER	2,3
201	LSGU0165	OPERATION BUTTON B	1 MKA
206	VEKS5787	SPEAKER CORD W/PLUG,DC 16V	1 MKA
210	LSMX0134	METAL SPACER	2
211	LSMA0445	SUPPORT ANGLE	2 MKA
212	LSMG0051	HDD DAMPER	2
213	LSEQ0587	HARD DISK DRIVE	2 E.S.D. MKA
214	VEKS5789	CONNECTOR CABLE W/PLUG,DC 5V	2 MKA
215	LSSC0392	BOTTOM SHIELD COVER	2
216	LSSC0393	TOP SHIELD COVER	2
231	LSMA0446	SUPPORT ANGLE	2 MKA
232	LSMA0450	TERMINAL SUPPORT PANEL	2 MKA
234	LSMA0447	SUPPORT ANGLE A	2 MKA
235	LSMA0448	SUPPORT ANGLE B	2 MKA
236	LSRF0011	FAN MOTOR,DC12V	2 ⚠ MKA
237	LSMA0452	HEAT SINK SUPPORT ANGLE	2 MKA
238	LSMA0451	HC SUPPORT ANGLE	2 MKA
239	VEKS5805	CONNECTOR CABLE W/PLUG,DC 5V,DC 15V	2 MKA
240	LSMT0049	CUSHION,POLYURETHANE-NYLON	2
241	VEKS5778	CONNECTOR CABLE W/PLUG,DC 48V	2 MKA
242	VEKS5779	CONNECTOR CABLE W/PLUG,DC 12V	2 MKA
243	VEKS5780	CONNECTOR CABLE W/PLUG,DC 12V	2 MKA
244	VEKS5781	CONNECTOR CABLE W/PLUG,DC 1V	2 MKA
245	VEKS5782	CONNECTOR CABLE W/PLUG,DC 5V	2 MKA

Ref. No.	Part No.	Part Name & Description	Remarks
246	VEKS5783	CONNECTOR CABLE W/PLUG,DC 1V	2 MKA
247	VEKS5784	CONNECTOR CABLE W/PLUG,DC 1V	2 MKA
248	VEKS5785	CONNECTOR CABLE W/PLUG,DC 1V	2 MKA
249	VEKS5786	CONNECTOR CABLE W/PLUG,DC 5V	2 MKA
250	LSYY0010	HDR UNIT	2 E.S.D. MKA
253	LQF62005A	CAUTION LABEL	2 MKA
254	VEKS5803	GROUNDING WIRE	2 MKA
255	TMM77405	CLAMPER	2,3
426	TMM77532	CUSHION,RUBBER	1
432	XTV3+8JR	TAPPING SCREW,STEEL	2
443	XTV4+12A	TAPPING SCREW,STEEL	1
445	LHT60001Y	SCREW W/WASHER,STEEL	1 MKA
446	XTV4+16A	TAPPING SCREW,STEEL	1 MKA
469	XTV3+10GR	TAPPING SCREW,STEEL	2
470	XTV3+10G	TAPPING SCREW,STEEL	3
479	LSHD0066	SCREW W/WASHER,STEEL	2 MKA
480	LSHD0072	HEXAGON SCREW	2 MKA
482	XNG3	NUT,STEEL	3
483	XYN3+F10S	SCREW W/WASHER,STEEL	3
484	XTW3+10J	TAPPING SCREW,STEEL	3
487	XYN3+J8	SCREW W/WASHER,STEEL	3 MKA
493	XSN6-32+48	SCREW,STEEL	2
494	XTN4+12AR	SCREW,STEEL	2 MKA
495	XTN4+6F	TAPPING SCREW,STEEL	2 MKA
496	XTB4+20F	SCREW,STEEL	2 MKA
497	XTV3+10J	TAPPING SCREW,STEEL	1
498	XYE3+FJ8	TAPPING SCREW,STEEL	2 MKA
499	XTB3+6JR	TAPPING SCREW,STEEL	2
500	XTV3+8F-N	TAPPING SCREW,STEEL	2
713	VMAS1912	P.C.B. SUPPORT ANGLE	3
714	VMTS0059	CUSHION,RUBBER	3
715	LSSS0016	JUMPER SWITCH	3 MKA
741	LSJA0270	AC CORD W/PLUG,AC 120V	3 ⚠
	OR LSJA0292	AC CORD W/PLUG,AC 120V	3 ⚠ MKA
742	TJC6319	FUSE HOLDER	3
743	ENG36706GR	TUNER,UHF/VHF NR	3 MKA
751	LML69001A	ANODE LEAD CLAMPER	3 MKA
756	LSSC0353	HEAT SINK	3 MKA
759	TUC77627	HEAT SINK	3 MKA
760	TUC77628	HEAT SINK	3 MKA
765	LSSC0254	VERTICAL HEAT SINK	3 MKA
771	EYF52BC	FUSE HOLDER	3
773	VSCS1072	HEAT SINK	3
781	VEKS5802	CONNECTOR CABLE W/PLUG,0V	3 MKA
JA	VEKS5705	GROUNDING WIRE	2 MKA
E10	VEPS3089A	MAIN C.B.A.	2,3 E.S.D. RTL MKA
E11	VEPS0A97A	INFRARED C.B.A.	3 RTL MKA
E20	VEPS1019A	POWER SUPPLY C.B.A.	2,3 RTL MKA
E30	LRP61012A	TV MAIN C.B.A.	2,3 RTL MKA
E31	LRP63019C	VERTICAL C.B.A.	3 RTL MKA
E50	VEPS9008A	HDR MAIN C.B.A.	2 E.S.D.
E40	VEPS8061A	OPERATION C.B.A.	2 RTL MKA
E60	VEPS0B04A	AUDIO/VIDEO JACK C.B.A.	2 RTL MKA
E70	LRP63005E	CRT C.B.A.	2 RTL MKA

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13.3. ELECTRICAL REPLACEMENT PARTS LIST

13.3.1. PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	VEPS3089A	MAIN C.B.A.	E.S.D. RTL MKA
E11	VEPS0A97A	INFRARED C.B.A.	RTL MKA
E20	VEPS1019A	POWER SUPPLY C.B.A.	RTL MKA
E30	LRP61012A	TV MAIN C.B.A.	RTL MKA
E31	LRP63019C	VERTICAL C.B.A.	RTL MKA
E50	VEPS9008A	HDR MAIN C.B.A.	E.S.D.
E40	VEPS8061A	OPERATION C.B.A.	RTL MKA
E60	VEPS0B04A	AUDIO/VIDEO JACK C.B.A.	RTL MKA
E70	LRP63005E	CRT C.B.A.	RTL MKA

13.3.2. MAIN C.B.A

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC4001	NJM4565MDTE1	IC, LINEAR	MKA
IC4002	CD4052BCM	IC, CMOS STANDARD LOGIC	E.S.D.
	OR UPD4052BG	IC, CMOS STANDARD LOGIC	E.S.D.
IC4003	CD4052BCM	IC, CMOS STANDARD LOGIC	E.S.D.
	OR UPD4052BG	IC, CMOS STANDARD LOGIC	E.S.D.
IC4004	NJM4565MDTE1	IC, LINEAR	MKA
IC4005	NJM4565MDTE1	IC, LINEAR	MKA
IC4006	LA4285	IC, LINEAR	MKA
IC4007	LA4285	IC, LINEAR	MKA
IC4201	NJM4565MDTE1	IC, LINEAR	MKA
IC4901	CXA2064M	IC, LINEAR	MKA
IC4902	NJM4565MDTE1	IC, LINEAR	MKA
IC5301	AN5367FB	IC, LINEAR	MKA
IC5501	CD4052BCM	IC, CMOS STANDARD LOGIC	E.S.D.
	OR UPD4052BG	IC, CMOS STANDARD LOGIC	E.S.D.
IC5502	CD4052BCM	IC, CMOS STANDARD LOGIC	E.S.D.
	OR UPD4052BG	IC, CMOS STANDARD LOGIC	E.S.D.
IC5503	NJM2246M	IC, LINEAR	
IC5504	TC4W66F	IC, LINEAR	
IC6001	AT24C01A10SI	IC, 1K EEP ROM	E.S.D.
	OR KS24C011IS	IC, 1K EEP ROM	E.S.D.
	OR M24C01-MN6	IC, 1K EEP ROM	E.S.D.
IC6002	D784928YG113	IC, 16BIT MICROCONTROLLER	E.S.D.
IC6003	LC8632165N41	IC, 8BIT MICROCONTROLLER	E.S.D. MKA
IC6501	S-80844ANNP	IC, LINEAR	MKA
IC6502	UPD78F0034A	IC, 16BIT MICROCONTROLLER	E.S.D. MKA
	OR D780021AGA05	IC, 16BIT MICROCONTROLLER	E.S.D. MKA

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q3001	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3002	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3003	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3004	2SC2295(C)	CHIP	
Q3005	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3006	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3007	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3008	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3011	2SC2295(C)	CHIP	
Q3012	2SC2295(C)	CHIP	
Q3013	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3014	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3015	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3016	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3017	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3018	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3019	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q4003	2SD1328	CHIP	
	OR 2SD2436	CHIP	
Q4004	2SD1328	CHIP	
	OR 2SD2436	CHIP	
Q4005	DTA124EK	CHIP	
	OR UN2112	CHIP	
Q4006	DTC124EK	CHIP	
	OR UN2212	CHIP	
Q4007	2SD1328	CHIP	
	OR 2SD2436	CHIP	
Q4008	2SD1328	CHIP	
	OR 2SD2436	CHIP	
Q4009	DTA124EK	CHIP	
	OR UN2112	CHIP	
Q4010	DTC124EK	CHIP	
	OR UN2212	CHIP	
Q4201	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q4202	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q4901	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q4902	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q5302	2SD1858(R)		MKA
	OR 2SD2259		

Ref. No.	Part No.	Part Name & Description	Remarks
Q5303	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q5304	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q5501	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q5502	2SC2295(C)	CHIP	
Q5503	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q5504	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q5505	DTC114YK	CHIP	
	OR UN2214	CHIP	
Q5506	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q5007	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6001	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q6002	DTA124EK	CHIP	
	OR UN2112	CHIP	
Q6003	HN1C01F(GR)	COMPLX CMP SI NPN CHIP	
	OR IMX1	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q6004	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D3001	MA4091N-M	ZENER 9.1V	
D4005	MA4120-M	ZENER 12V	
D4006	MA4120-M	ZENER 12V	
D4007	MA4120-M	ZENER 12V	
D4008	MA4120-M	ZENER 12V	
D4009	MA4120-M	ZENER 12V	
D4010	MA165		
	OR 1SS119		
	OR 1SS133T		
D4011	MA165		
	OR 1SS119		
	OR 1SS133T		
D4012	MA165-TA5.VT		
D4013	MA165-TA5.VT		
D4901	MA165		
	OR 1SS119		
	OR 1SS133T		
D5301	MA165		
	OR 1SS119		
	OR 1SS133T		
D5302	MA4062-L	ZENER 6.2V	⚠
D6002	MA165		
	OR 1SS119		
	OR 1SS133T		
D6005	MA165		
	OR 1SS119		

Ref. No.	Part No.	Part Name & Description	Remarks
	OR 1SS133T		
D6006	MA165		
	OR 1SS119		
	OR 1SS133T		
D6501	MA728	CHIP	
D6502	SLP313C81HAB	LED GREEN	
D6503	SLP913C81HAB	LED RED	
D6504	SLP313C81HAB	LED GREEN	
D6505	SLP913C81HAB	LED RED	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3001	ERJ6ENF1001V	MGF CHIP 1/10W 1K	
R3002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3003	ERJ6ENF1001V	MGF CHIP 1/10W 1K	
R3004	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R3006	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3007	ERJ6ENF4700V	MGF CHIP 1/10W 470	MKA
R3008	ERJ6ENF4700V	MGF CHIP 1/10W 470	MKA
R3009	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3010	ERDS2TJ100	10	
R3011	ERDS2TJ100	10	
R3014	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R3015	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R3016	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R3017	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R3018	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3019	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3022	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3023	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3024	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3025	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3026	ERJ6GEYJ112V	MGF CHIP 1/10W 1.1K	
R3027	ERJ6GEYJ112V	MGF CHIP 1/10W 1.1K	
R3028	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R3029	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3030	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R3031	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3032	ERJ6ENF2701V	MGF CHIP 1/10W 2.7K	MKA
R3033	ERJ6ENF3301V	MGF CHIP 1/10W 3.3K	MKA
R3034	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3035	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3036	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3037	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3038	ERJ6ENF1501V	MGF CHIP 1/10W 1.5K	
R3039	ERJ6ENF1501V	MGF CHIP 1/10W 1.5K	
R3042	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3043	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3044	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3045	ERJ6ENF2700V	MGF CHIP 1/10W 270	MKA
R3050	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3051	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3052	ERJ6GEYJ680V	MGF CHIP 1/10W 68	
R3053	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3054	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3055	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

Ref. No.	Part No.	Part Name & Description	Remarks
R3056	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3057	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3058	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3059	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3060	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R3061	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R4001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4005	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4006	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4007	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4008	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4009	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4010	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4019	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4021	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4029	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4030	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4031	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4032	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4033	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R4034	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R4035	ERDS2TJ100	10	
R4036	ERDS2TJ100	10	
R4038	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4039	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4040	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4041	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4042	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4044	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4045	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4046	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4048	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4049	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4050	ERDS2TJ270	27	
R4051	ERDS2TJ270	27	
R4054	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4055	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4056	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4057	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4201	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4202	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4204	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4205	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4206	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4207	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4208	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4209	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4210	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4211	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R4212	ERJ6ENF1001V	MGF CHIP 1/10W 1K	
R4213	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R4214	ERJ6ENF1001V	MGF CHIP 1/10W 1K	
R4216	ERDS2TJ270	27	
R4217	ERDS2TJ270	27	
R4901	ERJ6GEYJ821V	MGF CHIP 1/10W 820	

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Ref. No.	Part No.	Part Name & Description	Remarks
R4902	EVNCYAA03B14	VARIABLE 10K	
R4903	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4904	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R4905	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R4906	EVNCYAA03B14	VARIABLE 10K	
R4907	ERJ6GEYG683V	MGF CHIP 1/10W 68K	
R4908	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R4909	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4910	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4911	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4912	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R4913	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R4914	EVMAASA00B53	VARIABLE 5K	
R4915	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4916	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4917	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4918	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4922	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4923	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5301	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5305	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5306	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5307	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5308	ERDS2TJ101	100	
R5309	ERDS1FJ3R3P	1/2W 3.3	⚠ MKA
R5310	ERDS2TJ101	100	
R5311	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5312	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5313	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5314	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R5316	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5317	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5318	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R5319	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R5320	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R5321	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5322	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5324	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5327	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5328	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R5329	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5330	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5331	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5332	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5333	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5335	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5337	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5338	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R5340	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5341	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5342	ERJ6ENF3241V	MGF CHIP 1/10W 3.24K	⚠
R5343	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5344	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5345	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5346	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5347	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

Ref. No.	Part No.	Part Name & Description	Remarks
R5348	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5350	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5352	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5353	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5354	ERDS2TJ471	470	
R5355	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5356	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R5357	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5358	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5501	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5502	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5503	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5506	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5507	ERJ6ENF4700V	MGF CHIP 1/10W 470	MKA
R5508	ERJ6ENF4700V	MGF CHIP 1/10W 470	MKA
R5510	ERJ6ENF1001V	MGF CHIP 1/10W 1K	
R5511	ERJ6ENF1001V	MGF CHIP 1/10W 1K	
R5512	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5513	ERJ6ENF2200V	MGF CHIP 1/10W 220	MKA
R5514	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R5516	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5517	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5518	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5519	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5520	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5521	ERJ6ENF1500V	MGF CHIP 1/10W 150	
R5523	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5524	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R5525	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R5526	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5527	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6004	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6005	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6007	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6008	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6010	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6014	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6015	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6016	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6017	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6018	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6019	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6020	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6025	ERDS2TJ221	220	
R6026	ERDS2TJ221	220	
R6027	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6029	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6030	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6031	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6032	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6033	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6034	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6036	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6038	ERJ6GEY0R00V	MGF CHIP 1/10W 0	

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Ref. No.	Part No.	Part Name & Description	Remarks
R6039	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6040	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6041	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6042	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6043	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6044	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6054	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6055	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6056	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6057	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6061	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6062	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6063	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6064	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6068	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6069	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6070	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6074	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6076	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6078	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6079	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6080	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6081	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6082	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6083	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6084	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6086	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6087	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6088	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6089	ERDS2TJ222	2.2K	
R6090	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6093	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R6095	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6096	ERDS2TJ103	10K	
R6097	ERDS2TJ103	10K	
R6098	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R6100	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6101	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6102	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R6103	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6104	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6105	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6106	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R6108	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6109	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6110	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6113	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6114	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6115	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6116	VLPS0111	CHIP BEAD INDUCTOR	MKA
R6117	VLPS0111	CHIP BEAD INDUCTOR	MKA
R6118	VLPS0111	CHIP BEAD INDUCTOR	MKA
R6119	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6120	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6121	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	

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Ref. No.	Part No.	Part Name & Description	Remarks
R6122	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6123	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6124	ERDS2TJ222	2.2K	
R6125	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6126	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6128	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6133	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6134	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6135	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6136	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6137	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6138	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6140	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R6141	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6143	ERDS2TJ332	3.3K	
R6501	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6502	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R6503	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R6504	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6505	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6506	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6507	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6508	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6509	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6510	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6511	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6512	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6513	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6514	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6515	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6516	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6517	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6518	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6519	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6520	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6521	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6522	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6523	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6524	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6525	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6526	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6527	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6528	ERJ6GEYJ202V	MGF CHIP 1/10W 2K	
R6529	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6530	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6531	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6532	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6534	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6535	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6536	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6537	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6538	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6539	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6541	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R6542	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R6543	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R6544	ERJ6GEYJ271V	MGF CHIP 1/10W 270	

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Ref. No.	Part No.	Part Name & Description	Remarks
R6545	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6546	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6547	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6548	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6549	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6550	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6551	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6552	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6553	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6555	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6556	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6557	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6558	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6559	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6560	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6561	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6562	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6563	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6564	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6565	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6567	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C3001	ECUV1H104ZFN	C CHIP 50V 0.1	
C3002	ECUV1H104ZFN	C CHIP 50V 0.1	
C3003	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3004	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3005	ECUV1H104ZFN	C CHIP 50V 0.1	
C3006	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3009	ECUV1H220JCN	C CHIP 50V 22P	
C3010	ECUV1H220JCN	C CHIP 50V 22P	
C3013	ECUV1H560JCN	C CHIP 50V 56P	
C3014	ECUV1H560JCN	C CHIP 50V 56P	
C3015	ECUV1H220JCN	C CHIP 50V 22P	
C3016	ECUV1H220JCN	C CHIP 50V 22P	
C3019	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3020	ECUV1H104ZFN	C CHIP 50V 0.1	
C3032	ECUV1H104ZFN	C CHIP 50V 0.1	
C3033	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
C3034	ECUV1H104ZFN	C CHIP 50V 0.1	
C3035	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
C3037	ECEA1CKA101	ELECTROLYTIC 16V 100	
C3041	ECA1CM471B	ELECTROLITIC 16V 470	
C3042	ECUV1H104ZFN	C CHIP 50V 0.1	
C3043	ECEA1CKA101	ELECTROLYTIC 16V 100	
C4001	ECUV1E104ZFN	C CHIP 25V 0.1	
C4002	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4003	ECUV1E104ZFN	C CHIP 25V 0.1	
C4004	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4005	ECUV1H104ZFN	C CHIP 50V 0.1	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1H104ZFN	C CHIP 50V 0.1	
C4011	ECUV1H104ZFN	C CHIP 50V 0.1	
C4012	ECUV1H104ZFN	C CHIP 50V 0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C4014	ECUV1H104ZFN	C CHIP 50V 0.1	
C4015	ECUV1H104ZFN	C CHIP 50V 0.1	
C4016	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4017	ECUV1H104ZFN	C CHIP 50V 0.1	
C4018	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4025	ECUV1H104ZFN	C CHIP 50V 0.1	
C4026	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4032	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4034	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4036	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4037	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4038	ECEA1CKA470	ELECTROLYTIC 16V 47	
C4039	ECEA1CKA470	ELECTROLYTIC 16V 47	
C4040	ECA1CM221B	ELECTROLYTIC 16V 220	
C4041	ECA1CM221B	ELECTROLYTIC 16V 220	
C4042	ECUV1H103ZFN	C CHIP 50V 0.01	
C4043	ECUV1H103ZFN	C CHIP 50V 0.01	
C4044	ECUV1E473KBN	C CHIP 25V 0.047	
C4045	ECUV1E473KBN	C CHIP 25V 0.047	
C4046	ECA1EM102B	ELECTROLYTIC 25V 1000	MKA
C4047	ECUV1E104ZFN	C CHIP 25V 0.1	
C4048	ECUV1E104ZFN	C CHIP 25V 0.1	
C4054	ECUV1H103ZFN	C CHIP 50V 0.01	
C4055	ECUV1H103ZFN	C CHIP 50V 0.01	
C4201	ECUV1H102KBN	C CHIP 50V 1000P	
C4202	ECUV1H102KBN	C CHIP 50V 1000P	
C4203	ECUV1H561JCN	C CHIP 50V 560P	
C4204	ECUV1H561JCN	C CHIP 50V 560P	
C4205	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4206	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4207	ECUV1H104ZFN	C CHIP 50V 0.1	
C4208	ECUV1H104ZFN	C CHIP 50V 0.1	
C4209	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4210	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4211	ECUV1H104ZFN	C CHIP 50V 0.1	
C4212	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4213	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4214	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4215	ECUV1H104ZFN	C CHIP 50V 0.1	
C4216	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4901	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4902	ECUV1H103ZFN	C CHIP 50V 0.01	
C4903	ECUV1E123KBN	C CHIP 25V 0.012	
C4904	ECUV1H562KBN	C CHIP 50V 5600P	
C4905	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4906	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4907	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4908	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4909	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4910	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4911	ECEA1EKN4R7	ELECTROLYTIC 25V 4.7	
C4912	ECUV1H272KBN	C CHIP 50V 2700P	
C4913	ECUV1E473KBN	C CHIP 25V 0.047	
C4914	ECEA1EKN4R7	ELECTROLYTIC 25V 4.7	
C4915	ECEA1EKN4R7	ELECTROLYTIC 25V 4.7	
C4916	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4917	ECEA1HKA3R3	ELECTROLYTIC 50V 3.3	

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Ref. No.	Part No.	Part Name & Description	Remarks
C4918	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4919	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4920	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5303	ECUV1H103ZFN	C CHIP 50V 0.01	
C5304	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5305	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5306	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5307	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5308	ECUV1H103ZFN	C CHIP 50V 0.01	
C5309	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C5310	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C5311	ECUV1H103ZFN	C CHIP 50V 0.01	
C5312	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5313	ECUV1H103ZFN	C CHIP 50V 0.01	
C5314	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5315	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C5316	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C5317	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C5318	ECUV1E104KBN	C CHIP 25V 0.1	
C5319	ECUV1H681KBN	C CHIP 50V 680P	
C5320	ECUV1H222KBN	C CHIP 50V 2200P	
C5321	ECUV1C224KBN	C CHIP 16V 0.22	
C5322	ECUV1E183KBN	C CHIP 25V 0.018	
C5323	ECEA1HKA010	ELECTROLYTIC 50V 1	
C5324	ECUV1E153KBN	C CHIP 25V 0.015	
C5325	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5326	ECUV1H150JCN	C CHIP 50V 15P	
C5327	ECUV1H221JSN	C CHIP 50V 220P	MKA
C5328	ECEA1HKA010	ELECTROLYTIC 50V 1	
C5329	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5330	ECUV1E333KBN	C CHIP 25V 0.033	
C5331	ECUV1E333KBN	C CHIP 25V 0.033	
C5332	ECUV1H103ZFN	C CHIP 50V 0.01	
C5501	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5503	ECUV1H103ZFN	C CHIP 50V 0.01	
C5505	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C5506	ECUV1H103ZFN	C CHIP 50V 0.01	
C5507	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C5508	ECUV1H103ZFN	C CHIP 50V 0.01	
C5509	ECUV1H103ZFN	C CHIP 50V 0.01	
C5510	ECUV1C105ZFN	C CHIP 16V 1	
C5511	ECUV1H103ZFN	C CHIP 50V 0.01	
C5512	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C5513	ECUV1H103ZFN	C CHIP 50V 0.01	
C5514	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C5515	ECUV1H103ZFN	C CHIP 50V 0.01	
C5518	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5519	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5520	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5521	ECUV1H220JCN	C CHIP 50V 22P	
C5522	ECUV1H103ZFN	C CHIP 50V 0.01	
C5523	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5524	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5525	ECUV1H104ZFN	C CHIP 50V 0.1	
C6001	ECUV1E104ZFN	C CHIP 25V 0.1	
C6003	ECUV1E104ZFN	C CHIP 25V 0.1	
C6004	ECUV1H101JCN	C CHIP 50V 100P	

Ref. No.	Part No.	Part Name & Description	Remarks
C6005	ECUV1H101JCN	C CHIP 50V 100P	
C6008	ECUV1E104ZFN	C CHIP 25V 0.1	
C6010	ECUV1H103ZFN	C CHIP 50V 0.01	
C6012	ECUV1H020CCN	C CHIP 50V 2P	
C6013	ECUV1H150GCN	C CHIP 50V 15P	
C6014	ECUV1H180JCN	C CHIP 50V 18P	
C6016	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6017	ECUV1E104ZFN	C CHIP 25V 0.1	
C6020	ECUV1H104ZFN	C CHIP 50V 0.1	
C6026	ECUV1E104ZFN	C CHIP 25V 0.1	
C6028	ECEA0JKS470	ELECTROLYTIC 6.3V 47	
C6029	ECUV1H103KBN	C CHIP 50V 0.01	
C6034	ECEA1CKS100	ELECTROLYTIC 16V 10	
C6036	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C6037	ECUV1E104ZFN	C CHIP 25V 0.1	
C6038	ECUV1H220JCN	C CHIP 50V 22P	
C6039	ECUV1H180JCN	C CHIP 50V 18P	
C6040	ECUV1H103ZFN	C CHIP 50V 0.01	
C6041	ECUV1H102KBN	C CHIP 50V 1000P	
C6042	ECA1CM100B	ELECTROLYTIC 16V 10	
C6043	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C6044	ECUV1E333KBN	C CHIP 25V 0.033	
C6045	ECEA1HKS010	ELECTROLYTIC 50V 1	
C6048	ECUV1H103ZFN	C CHIP 50V 0.01	
C6049	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C6050	ECEA1EKS4R7	ELECTROLYTIC 25V 4.7	
C6512	ECEA0JKS470	ELECTROLYTIC 6.3V 47	
C6513	ECEA0JKS470	ELECTROLYTIC 6.3V 47	
C6514	ECEA0JKS101	ELECTROLYTIC 6.3V 100	
C6515	ECUV1E104ZFN	C CHIP 25V 0.1	
C6516	ECUV1E104ZFN	C CHIP 25V 0.1	
C6517	ECUV1E104ZFN	C CHIP 25V 0.1	
C6520	ECUV1E104ZFN	C CHIP 25V 0.1	
C6521	ECUV1E104ZFN	C CHIP 25V 0.1	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3003	VLQSH02R330K	33	
L3004	VLQSH02R330K	33	
L3005	VLQSH02R330K	33	
L3006	VLQSH02R330K	33	
L4901	ELESN101KA	100	
L5301	ELESN101KA	100	
L5302	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L5303	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L5304	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L5501	ELESN101KA	100	
L5502	ELESN101KA	100	
L5503	ELESN101KA	100	
L5505	ELESN101KA	100	
L5506	ELESN101KA	100	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X5301	VSXS0208-A		MKA
X5302	CSB503F38		
X6001	VSXS0784		MKA
X6002	VSXS0238		MKA
X6501	EF0EC8384T4		MKA

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P3001	VJPS0276	CONNECTOR 6P	
P3002	VJPS0277	CONNECTOR 7P	
P3003	VJPS0771	CONNECTOR PLUG 13P	MKA
P3004	VJPS0267	10P	
P3005	VJPS0280	CONNECTOR 11P	
P3006	VJPS0281	12P	
P4001	VJPS0268	CONNECTOR 2P	
P4002	VJPS0275	CONNECTOR 5P	
P4003	VJPS0268	CONNECTOR 2P	
P5300	VJPS0275	CONNECTOR 5P	
P5301	VJSS0897	CONNECTOR CABLE W/PLUG,12V	MKA
P5302	VJPS0772	CONNECTOR PLUG 19P	MKA
P6001	VJPS0450	14P	
P6002	VJPS0771	CONNECTOR PLUG 13P	MKA
P6501	VJPS0278	8P	
P6502	VJPS0279	9P	
P6503	VJPS0273	CONNECTOR 3P	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6501	EVQ21405R	PUSH SWITCH	
SW6502	EVQ21405R	PUSH SWITCH	
SW6503	EVQ21405R	PUSH SWITCH	
SW6504	EVQ21405R	PUSH SWITCH	
SW6505	EVQ21405R	PUSH SWITCH	
SW6506	EVQ21405R	PUSH SWITCH	
SW6507	EVQ21405R	PUSH SWITCH	
SW6508	EVQ21405R	PUSH SWITCH	
SW6509	LSSS0014	JUMPER SWITCH	MKA
SW6510	EVQ21405R	PUSH SWITCH	
SW6511	EVQ21405R	PUSH SWITCH	
SW6512	EVQ21405R	PUSH SWITCH	

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E11	VEPS0A97A	INFRARED C.B.A.	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
96	TMM7464-1	CLAMPER	
255	TMM77405	CLAMPER	
713	VMAS1912	P.C.B. SUPPORT ANGLE	
714	VMTS0059	CUSHION,RUBBER	
715	LSSS0016	JUMPER SWITCH	MKA

13.3.3. INFRARED C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC6351	PNA4611M00YA	INFRARED RECEIVER UNIT	MKA

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6351	ERDS2TJ560	56	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C6351	VCYSHRE104ZF	CERAMIC 25V 0.1	
C6352	ECEA0JKA470	ELECTROLYTIC 6.3V 47	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P6351	VJHS0294	4P	

13.3.4. POWER SUPPLY C.B.A

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC1001	AN8021NS	IC, LINEAR	MKA
IC1101	NJM2380AF	IC, LINEAR	MKA
IC1102	M5223AFP-720	IC, LINEAR	MKA
IC1301	DS1233-10	IC, LINEAR	MKA
IC1501	NJM4565MDTE1	IC, LINEAR	MKA
IC1502	NJM4565MDTE1	IC, LINEAR	MKA

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q1001	2SK2996	FET	⚠ MKA
Q1101	2SD601(R,S)	CHIP	
Q1201	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q1202	2SC2412K1	CHIP	
	OR 2SD601(R,S)	CHIP	
Q1203	2SD2097TV2R	CHIP	
	OR 2SD235800A	CHIP	
Q1204	2SD1119(R)	CHIP	
Q1205	2SC2412K1	CHIP	
	OR 2SD601(R,S)	CHIP	
Q1206	2SD2097TV2R	CHIP	
	OR 2SD235800A	CHIP	
Q1207	2SD2097TV2R	CHIP	
	OR 2SD235800A	CHIP	
Q1208	2SB710A(T)	CHIP	
Q1301	2SK1374	F.E.T. CHIP	
Q1302	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q1303	NDT456P	FET	MKA
Q1304	NDT455N	FET	MKA
Q1306	2SD2097TV2R	CHIP	
	OR 2SD235800A	CHIP	
Q1307	2SC3852		
	OR 2SD2375(P,Q)		
	OR 2SD2396(K)		
Q1308	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q1501	DTC114EU	CHIP	
	OR MUN5211T1	CHIP	
	OR UN5211	CHIP	
Q1503	2SD1119(R)	CHIP	
Q1504	DTC114EU	CHIP	
	OR MUN5211T1	CHIP	
	OR UN5211	CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1001	ERZV10D241	SURGE ABSORBER 240V	⚠ MKA
D1002	D3SBA60-4101		⚠ MKA
D1003	MA111	CHIP	
D1004	MA4300-L	ZENER 30V	
D1005	MA165		
D1006	MA4300-L	ZENER 30V	
D1007	ERA18-04V3		
D1008	MA8200-L	ZENER CHIP 20V	MKA
	OR UDZTE-1720B	ZENER CHIP 20V	
D1009	ERA18-04V3		
D1010	0N3131-R	IC, LINEAR ERROR V.DET	⚠
D1011	0N3131-R	IC, LINEAR ERROR V.DET	⚠
D1012	MA4200-L	ZENER 20V	MKA
D1101	ERC81-004		
D1102	ERA18-04V3		
D1103	ERA18-04V3		
D1104	MA4068N-H	6.8V	MKA
D1105	MA10799		MKA
D1106	MA7D56		MKA
D1107	MA4200-L	ZENER 20V	MKA
D1108	MA4051NM	ZENER 5.1V	
D1201	MA4056N-M	ZENER CHIP 5.6V	
D1202	MA4056N-M	ZENER CHIP 5.6V	
D1204	MA4100N	ZENER 10V	
	OR RD10JSAB3	ZENER 10V	
D1205	MA165		
	OR 1SS119		
	OR 1SS133T		
D1206	MA165		
	OR 1SS119		
	OR 1SS133T		
D1207	MA4300N-L	ZENER 30V	MKA
	OR MTZJT-7730C	ZENER 30V	
D1208	MA165		
	OR 1SS119		
	OR 1SS133T		
D1209	MA4100N	ZENER 10V	
	OR RD10JSAB3	ZENER 10V	
D1210	MA165		
	OR 1SS119		
	OR 1SS133T		
D1211	MA165		
	OR 1SS119		
	OR 1SS133T		
D1526	MA4120-M	ZENER 12V	
D1528	DSSV-401M-YD	SURGE ABSORBER 450V	⚠
D1529	MA3120	ZENER CHIP 12.0V	
D1530	MA3120	ZENER CHIP 12.0V	
D1531	MA111	CHIP	
D1532	MA165-TA5.VT		
D1533	MA147		
D1534	MA147		
D1535	MA4091-M	ZENER 9.1V	
	OR MA4091-L	ZENER 9.1V	
	OR MTZJT-779.1B	ZENER 9.1V	

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RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R1002	LSRJA8J224V	MGF CHIP 1/8W 220K	MKA
R1003	LSRJA8J274V	MGF CHIP 1/8W 270K	MKA
R1004	LSRJA6J823V	MGF CHIP 1/10W 82K	MKA
R1005	LSRJA8J104V	MGF CHIP 1/8W 100K	MKA
R1006	LSRJA8J124V	MGF CHIP 1/8W 120K	MKA
R1007	LSRJA8J331V	MGF CHIP 1/8W 330	MKA
R1008	LSRJA6J102V	MGF CHIP 1/10W 1K	MKA
R1009	LSRJA8J470V	MGF CHIP 1/8W 47	MKA
R1010	LSRJA8J101V	MGF CHIP 1/8W 100	MKA
R1011	LSRJA6J183V	MGF CHIP 1/10W 18K	MKA
R1012	LSRJA6J103V	MGF CHIP 1/10W 10K	
R1013	LSRJA6JR00V	MGF CHIP 1/10W 0	MKA
R1014	ERX2SJR22E	METAL OXIDE 2W 0.22	
R1015	ERX2SJR22E	METAL OXIDE 2W 0.22	
R1017	ERG2SJ683P	METAL OXIDE 2W 68K	
R1018	ERG2SJ220E	METAL OXIDE 2W 22	
R1019	LSRJA8J330V	MGF CHIP 1/8W 33	MKA
R1101	ERD25FJ4R7P	4.7	⚠
R1102	LSRJA6J101V	MGF CHIP 1/10W 100	
R1103	LSRJA6J102V	MGF CHIP 1/10W 1K	MKA
R1104	LSRJA6J222V	MGF CHIP 1/10W 2.2K	MKA
R1105	LSRJA8J100V	MGF CHIP 1/8W 10	MKA
R1106	LSRJA8J330V	MGF CHIP 1/8W 33	MKA
R1107	LSRJA6J101V	MGF CHIP 1/10W 100	
R1108	LSRJA6J472V	MGF CHIP 1/10W 4.7K	MKA
R1110	LSRJA6D3302V	MGF CHIP 1/10W 33K	MKA
R1111	LSRJA6J221V	MGF CHIP 1/10W 220	MKA
R1112	LSRJA6D2702V	MGF CHIP 1/10W 27K	MKA
R1113	LSRJA6D4301V	MGF CHIP 1/10W 4.3K	MKA
R1114	LSRJA6J683V	MGF CHIP 1/10W 68K	MKA
R1115	LSRJA6J683V	MGF CHIP 1/10W 68K	MKA
R1117	LSRJA6D1821V	MGF CHIP 1/10W 1.82K	MKA
R1119	LSRJA6D1821V	MGF CHIP 1/10W 1.82K	MKA
R1120	LSRJA6J561V	MGF CHIP 1/10W 560	MKA
R1122	LSRJA6J561V	MGF CHIP 1/10W 560	MKA
R1124	LSRJA6D1003V	MGF CHIP 1/10W 100K	MKA
R1125	LSRJA6D1203V	MGF CHIP 1/10W 120K	MKA
R1127	VRESJ4TJ122T	1.2K	MKA
R1131	ERQ1ABJP330S	FUSE 1W 33	⚠ MKA
R1132	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1201	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R1202	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R1203	ERDS2TJ331	330	
R1204	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R1205	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R1206	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R1207	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R1208	ERDS2TJ153	15K	
R1209	ERDS2TJ153	15K	
R1210	ERDS2TJ331	330	
R1211	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R1212	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1213	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	

Ref. No.	Part No.	Part Name & Description	Remarks
R1214	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R1301	ERG1SJ101P	METAL OXIDE 1W 100	
R1302	ERG1SJ101P	METAL OXIDE 1W 100	
R1303	ERDS2T0	0	
R1304	LSRJA6J102V	MGF CHIP 1/10W 1K	MKA
R1305	LSRJA6J102V	MGF CHIP 1/10W 1K	MKA
R1306	LSRJA6J102V	MGF CHIP 1/10W 1K	MKA
R1307	LSRJA6J102V	MGF CHIP 1/10W 1K	MKA
R1308	LSRJA6J103V	MGF CHIP 1/10W 10K	
R1309	LSRJA6J102V	MGF CHIP 1/10W 1K	MKA
R1310	LSRJA6J103V	MGF CHIP 1/10W 10K	
R1311	LSRJA6J103V	MGF CHIP 1/10W 10K	
R1312	LSRJA6J103V	MGF CHIP 1/10W 10K	
R1314	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R1315	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R1316	ERDS2TJ682	6.8K	
R1317	ERDS2TJ682	6.8K	
R1318	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1501	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1502	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1503	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1504	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1505	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1506	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1507	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1509	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R1510	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R1511	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R1512	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R1513	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R1514	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1515	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R1516	ERDS2TJ561	560	
R1517	ERDS2TJ561	560	
R1518	ERDS2TJ561	560	
R1519	ERDS2TJ561	560	
R1520	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1521	ERDS2TJ101	100	
R1522	ERDS2TJ750	75	
R1523	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1524	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1525	ERJ6GEYJ270V	MGF CHIP 1/10W 27	
R1526	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1527	ERDS2TJ270	27	
R1528	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1529	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1530	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1531	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1532	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1533	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1534	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1535	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1536	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1537	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1538	ERDS2TJ473	47K	
R1539	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1540	ERJ6GEY0R00V	MGF CHIP 1/10W 0	

Ref. No.	Part No.	Part Name & Description	Remarks
R1541	ERG1SJ150E	METAL OXIDE 1W 15	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1001	ECQU2A683MLC	POLYESTER 250V 0.068	⚠ MKA
C1002	ECUV1H104KBN	C CHIP 50V 0.1	
C1003	ECA2DHG221E	ELECTROYTIC 200V 220	⚠ MKA
C1004	ECUV1E222KBN	C CHIP 25V 2200P	MKA
C1005	ECA1VMH101B	ELECTROYTIC 35V 100	MKA
C1006	ECUV1H471KBN	C CHIP 50V 470P	
C1007	VCUSQBC105KB	C CHIP 16V 1	
C1009	ECQE2104KF	POLYESTER 250V 0.1	
C1010	LSCKCKL101JS	CERAMIC 1KV 100P	
C1011	ECUV1E104KBN	C CHIP 25V 0.1	
C1012	VCKST5G222MX	CERAMIC 250V 2200P	⚠ MKA
	OR ECKATS222ME	CERAMIC 250V 2200P	⚠
	OR VCKSTLG222MX	CERAMIC 250V 2200P	⚠
	OR VCKSU5D222MX	CERAMIC 125V 2200P	⚠
C1013	VCKST5G222MX	CERAMIC 250V 2200P	⚠ MKA
	OR ECKATS222ME	CERAMIC 250V 2200P	⚠
	OR VCKSTLG222MX	CERAMIC 250V 2200P	⚠
	OR VCKSU5D222MX	CERAMIC 125V 2200P	⚠
C1101	ECUV1H103KBN	C CHIP 50V 0.01	
C1102	ECUV1H272KBN	C CHIP 50V 2700P	
C1103	ECUV1H272KBN	C CHIP 50V 2700P	
C1104	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C1105	ECUV1H332KBN	C CHIP 50V 3300P	
C1106	ECEA1HGE470	ELECTROLYTIC 50V 47	
C1107	ECUV1H332KBN	C CHIP 50V 3300P	
C1108	ECUV1H103KBN	C CHIP 50V 0.01	
C1109	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C1110	ECUV1H103KBN	C CHIP 50V 0.01	
C1111	LSCE0085	ELECTROLYTIC	MKA
C1112	ECEA1HGE470	ELECTROLYTIC 50V 47	
C1113	LSCE0044	ELECTROLYTIC 10V 2200	MKA
C1114	ECUV1E473KBN	C CHIP 25V 0.047	
C1115	LSCE0044	ELECTROLYTIC 10V 2200	MKA
C1116	ECA1VMH470B	ELECTROLYTIC 35V 47	
C1117	ECUV1H103KBN	C CHIP 50V 0.01	
C1118	LSCE0085	ELECTROLYTIC	MKA
C1119	LSCE0044	ELECTROLYTIC 10V 2200	MKA
C1120	ECUV1H103ZFN	C CHIP 50V 0.01	
C1201	ECEA1CKA100	ELECTROLYTIC 16V 10	
C1204	ECEA1CKA101	ELECTROLYTIC 16V 100	
C1205	ECEA1CKA470	ELECTROLYTIC 16V 47	
C1209	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1210	ECEA1CKA470	ELECTROLYTIC 16V 47	
C1211	ECEA1CKA470	ELECTROLYTIC 16V 47	
C1212	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1215	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1216	ECEA1PEE101B	ELECTROLYTIC 18V 100	
C1301	ECUV1E104ZFN	C CHIP 25V 0.1	

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Ref. No.	Part No.	Part Name & Description	Remarks
C1302	ECUV1H104ZFN	C CHIP 50V 0.1	
C1303	ECEA1EKA470B	ELECTROLYTIC 25V 47	
C1304	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C1305	ECUV1H104ZFN	C CHIP 50V 0.1	
C1306	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C1307	ECUV1H104ZFN	C CHIP 50V 0.1	
C1308	ECUV1H104ZFN	C CHIP 50V 0.1	
C1309	ECUV1H104ZFN	C CHIP 50V 0.1	
C1310	ECUV1H104ZFN	C CHIP 50V 0.1	
C1311	ECUV1H104ZFN	C CHIP 50V 0.1	
C1312	ECA0JM471B	ELECTROLYTIC 6.3V 470	
C1313	ECUV1H104ZFN	C CHIP 50V 0.1	
C1314	ECUV1H104ZFN	C CHIP 50V 0.1	
C1315	ECA1CM221B	ELECTROLYTIC 16V 220	
C1317	ECA1CM101B	ELECTROLYTIC 16V 100	
C1318	ECA1HM100B	ELECTROLYTIC 50V 10	
C1319	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1320	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1501	ECUV1H104ZFN	C CHIP 50V 0.1	
C1502	ECUV1H104ZFN	C CHIP 50V 0.1	
C1503	ECUV1E104ZFN	C CHIP 25V 0.1	
C1504	ECA1CM470B	ELECTROLYTIC 16V 47	
C1505	ECEA0JKA220B	ELECTROLYTIC 6.3V 22	
C1506	ECEA0JKA220B	ELECTROLYTIC 6.3V 22	
C1507	ECA1CM101B	ELECTROLYTIC 16V 100	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L1001	ELF20N010A	LINE FILTER	⚠ MKA
L1003	LSLP0058	FERRITE CORE	
L1004	LSLP0058	FERRITE CORE	
L1005	LSLQ0065		MKA
L1006	LSLP0058	FERRITE CORE	
L1007	LSLP0058	FERRITE CORE	
L1101	VLQSAB7D220K	22	
L1102	LSLQA13R220K	22	MKA
L1103	VLQSAC3R101J	100	
L1104	VLQSAC3R101J	100	
L1105	VLQ0655K100T	10	MKA

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P1001	VJPS0303	CONNECTOR 2P	
P1201	VEKS5790	CONNECTOR CABLE W/PLUG,0V	MKA
P1202	VJPS0450	14P	
P1301	VJPS0739	CONNECTOR 12P	MKA
P1501	VJPS0277	CONNECTOR 7P	
P1502	VJPS0268	CONNECTOR 2P	
P1503	VJPS0267	10P	
P1504	VJSS0875	CONNECTOR RECEPTACLE 13P	MKA
P1505	LSJJ0176	SERIAL CONTROL JACK SOCKET	MKA
P1506	VJPS0526	2P	
P1507	VJPS0273	CONNECTOR 3P	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F1001	LSSF0046	FUSE 125V 1.6A	⚠ MKA
PR1101	UNH000400A	IC PROTECTOR	⚠ MKA
	OR ICP-N25T104	IC PROTECTOR	⚠
PR1102	UNH000400A	IC PROTECTOR	⚠ MKA
	OR ICP-N25T104	IC PROTECTOR	⚠
PR1104	UNH000400A	IC PROTECTOR	⚠ MKA
	OR ICP-N25T104	IC PROTECTOR	⚠
PR1201	UNH000400A	IC PROTECTOR	⚠ MKA
	OR ICP-N25T104	IC PROTECTOR	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T1001	ETS33AC4E5NC		⚠ MKA

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK1501	LSJJ0169	IR BRASTER JACK SOCKET	MKA
JK1502	LSJJ0172	S-VIDEO JACK SOCKET	MKA
JK1503	LSJJ0173	AUDIO/VIDEO JACK SOCKET	MKA
JK1504	LSJJ0171	TELEPHONE JACK SOCKET	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
154	TMM5439-1	CLAMPER	
482	XNG3	NUT,STEEL	
487	XYN3+J8	SCREW W/WASHER,STEEL	MKA
756	LSSC0353	HEAT SINK	MKA
771	EYF52BC	FUSE HOLDER	
773	VSCS1072	HEAT SINK	

13.3.5. TV MAIN C.B.A

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC501	TLP621GR	IC, LINEAR	⚠ MKA
IC801	STR30130	IC, LINEAR	⚠

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q501	2SC2482KT		MKA
Q551	2SD2539LBK		⚠ MKA
Q571	2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC945A(TQ)		
Q581	2SA1321TPE6		MKA
	OR 2SA1767(Q)		MKA
	OR 2SB1221(Q)		MKA
Q801	2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC945A(TQ)		

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D503	ERB43-04V		
	OR ES1V		
D505	MA165		
	OR 1SS119		
	OR 1SS133T		
D553	ERB43-04V		
	OR ES1V		
D554	MA167		
	OR 4148-TA		MKA
D558	ERB43-04V		
	OR ES1V		
D560	ERB44-04V		
D582	ERD07-15L26		
D591	TRPW5B0M050D	THERMISTOR	⚠
D806	MA167		
	OR 4148-TA		MKA
D807	ERC13-08V		⚠
D808	ERC13-08V		⚠
D809	ERC13-08V		⚠
D810	ERC13-08V		⚠
D811	ERZV10V361CS	SURGE ABSORBER 360	⚠ MKA
D882	ERZV10V361CS	SURGE ABSORBER 360	⚠ MKA

RESISTORS

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Ref. No.	Part No.	Part Name & Description	Remarks
R501	ERDS2TJ681	680	
R502	ERDS2TJ332	3.3K	
R505	ERDS2TJ561	560	
R511	ERG3FJ272H	METAL OXIDE 3W 2.7K	MKA
R513	ERG12SJ560P	METAL OXIDE 1/2W 56	MKA
R516	LAR05222J09	W FLMPRF 5W 2.2K	MKA
R552	ERDS2TJ103	10K	
R553	ERDS2TJ102	1K	
R554	ERDS2TJ822	8.2K	
R555	ERDS2TJ683	68K	
R556	ERDS2TJ563	56K	
R558	ERG2ANJ102H	METAL OXIDE 2W 1K	
R559	ERDS2TJ103	10K	
R560	ERQ1ABJP2R2S	FUSE 1W 2.2	⚠ MKA
R561	ERQ2CJP2R0S	FUSE 2W 2	⚠ MKA
R562	ERF5ZK2R2	W FLMPRF 5W 2.2	
R571	ERDS2TJ101	100	
R572	ERDS2TJ331	330	
R573	ERDS2TJ221	220	
R574	ERDS2TJ273	27K	
R581	ERDS1FJ1R5P	1/2W 1.5	⚠
R582	ERDS1FJ1R5P	1/2W 1.5	⚠
R583	ERDS1FJ1R2P	1/2W 1.2	⚠
R584	ERDS2TJ562	5.6K	
R585	ERDS2TJ473	47K	
R586	ERDS2TJ393	39K	
R591	ERF5ZJ121	W FLMPRF 5W 120	
R801	ERF5ZKR82	W FLMPRF 5W 0.82	
R802	ERDS1FPJ103V	1/2W 10K	⚠
R803	ERF10ZK8R2S	W FLMPRF 10W 8.2	MKA
R804	ERF20ZJ131	W FLMPRF 20W 130	
R805	ERDS2TJ104	100K	
R806	ERQ14AJ470P	FUSE 47	⚠
R809	ERDS2TJ222	2.2K	
R810	ERDS2TJ101	100	
R811	ERDS2TJ103	10K	
R812	VRESC2TK825T	SOLID 1/2W 8.2M	⚠
R813	ERDS2TJ124	120K	
R815	ERDS2TJ223	22K	
R7001	ERDS2TJ102	1K	
R7002	ERDS2TJ102	1K	
R7003	ERDS2TJ102	1K	
R7004	ERDS2TJ102	1K	
R7005	ERDS2T0	0	
R7006	ERDS2TJ331	330	
R7007	ERDS2TJ102	1K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C501	ECQB1H473KM	POLYESTER 50V 0.047	MKA
C510	ECKW2H681KB5	CERAMIC 500V 680P	
C513	ECA1HM100B	ELECTROLYTIC 50V 10	
C524	ECKC3D471KBP	CERAMIC 2KV 470P	⚠
C531	ECA1HM3R3B	ELECTROLYTIC 50V 3.3	MKA
C552	ECA1EM471E	ELECTROLYTIC 25V 470	
C553	ECKW2H221KB5	CERAMIC 500V 220P	
C554	ECWH12H682JS	POLYESTER 1.2V 6800P	⚠
C556	ECWF2564JBP	POLYESTER 25V 0.56	⚠ MKA
C558	ECA1VM101B	ELECTROLYTIC 35V 100	
C560	ECA2EM100E	ELECTROLYTIC 250V 10	⚠ MKA
C561	ECA2CM2R2B	ELECTROLYTIC 160V 2.2	MKA
C563	ECEA180V33	ELECTROLYTIC 180V 33	
C571	ECA1HM3R3B	ELECTROLYTIC 50V 3.3	MKA
C573	ECKW2H122KB5	CERAMIC 500V 1200P	
C581	ECWH12H622JS	POLYESTER 1.2KV 6200P	⚠ MKA
C801	ECKM2H472PE	CERAMIC 500V 4700P	
C802	ECKM2H472PE	CERAMIC 500V 4700P	
C803	ECKM2H472PE	CERAMIC 500V 4700P	
C804	ECKM2H472PE	CERAMIC 500V 4700P	
C805	ECOS2DP681BB	ELECTROLYTIC 200V 680	⚠ MKA
C806	ECA2EM330E	ELECTROLYTIC 250V 33	MKA
C807	ECKATS103MF	CERAMIC 250V 0.01	⚠
	OR VCKSU3D103MY	CERAMIC 125V 0.01	⚠
	OR VCKST3G103ZY	CERAMIC 250V 0.01	⚠
C808	ECQU2A823MLA	POLYESTER 250V 0.082	⚠ MKA
C809	VSQ1003-F	ARRESTER	⚠ MKA
C812	VCKST5G222MX	CERAMIC 250V 2200P	⚠ MKA
	OR VCKSTLG222MX	CERAMIC 250V 2200P	⚠
	OR VCKSU5D222MX	CERAMIC 125V 2200P	⚠
	OR ECKATS222ME	CERAMIC 250V 2200P	⚠
C813	VCKST5G222MX	CERAMIC 250V 2200P	⚠ MKA
	OR VCKSTLG222MX	CERAMIC 250V 2200P	⚠
	OR VCKSU5D222MX	CERAMIC 125V 2200P	⚠
	OR ECKATS222ME	CERAMIC 250V 2200P	⚠
C7006	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C7008	ECKW1H103ZF5	CERAMIC 50V 0.01	
C7010	ECEA1CKA100	ELECTROLYTIC 16V 10	
C7012	ECUV1H102KBN	C CHIP 50V 1000P	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L501	LLH6602T	HORIZONTAL LINEAR COIL	⚠ MKA
L801	ELF21V018A	LINE NOISE FILTER	⚠ MKA
L802	VLQSAE8D220K	22	MKA
L803	ELF21V018A	LINE NOISE FILTER	⚠ MKA
L7002	ELESN100KA	10	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P551	VJSS0876	CONNECTOR RECEPTACLE 19P	MKA
P552	VJSS0898	4P WIRE TRAP	MKA
P801	VJPS0303	CONNECTOR 2P	
P7004	VJSS0875	CONNECTOR RECEPTACLE 13P	MKA

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F801	LSSF012B040	FUSE 125V 4A	⚠ MKA
	OR XBA1F40NU100	FUSE 125V 4A	⚠

RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL801	TSEH0005	RELAY,120V	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T501	ETH19Y70AY		
T502	ETE16Z37AY		⚠
T551	KFT4AB285F		⚠ MKA

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E31	LRP63019C	VERTICAL C.B.A.	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
154	TMM5439-1	CLAMPER	
470	XTV3+10G	TAPPING SCREW,STEEL	
483	XYN3+F10S	SCREW W/WASHER,STEEL	
484	XTW3+10J	TAPPING SCREW,STEEL	
741	LSJA0270	AC CORD W/PLUG,AC 120V	⚠
741	LSJA0292	AC CORD W/PLUG,AC 120V	⚠ MKA
742	TJC6319	FUSE HOLDER	
743	ENG36706GR	TUNER,UHF/VHF NR	MKA
751	LML69001A	ANODE LEAD CLAMPER	MKA
759	TUC77627	HEAT SINK	MKA
760	TUC77628	HEAT SINK	MKA
781	VEKS5802	CONNECTOR CABLE W/PLUG,0V	

13.3.6. VERTICAL C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC451	LA7837	IC, LINEAR VERTICAL OUT	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q431	2SA1175		
	OR 2SA1175(TH)		MKA
	OR 2SA733(TQ)		MKA
Q432	2SC3311A(R)		MKA
Q433	2SB1322A(R,S)		MKA
Q434	2SC3311A(R)		MKA
Q502	2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC945A(TQ)		
Q541	2SA1175		
	OR 2SA1175(TH)		MKA
	OR 2SA733(TQ)		MKA
Q542	2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC945A(TQ)		

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D401	ERB12-01		
	OR ERB12-01RKV1		
	OR ERB12-01V		
D502	MA165		
	OR 1SS119		
	OR 1SS133T		
D504	MA4047-H	ZENER 4.7V	
	OR MA4047-M	ZENER 4.7V	
	OR RD4.7ESAB	ZENER 4.7V	
	OR RD4.7ESAB2	ZENER 4.7V	
	OR 04AZ4.7ZTPA7	ZENER 4.7V	
D506	MA165		
	OR 1SS119		
	OR 1SS133T		
D541	MA165		
	OR 1SS119		
	OR 1SS133T		
D542	MA4180-M	ZENER CHIP	
D543	MA165		
	OR 1SS119		
	OR 1SS133T		
D544	ERB43-04V		
	OR ES1V		

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R401	ERDS2TJ561	560	
R402	ERDS2TJ103	10K	
R405	ERG2SJ561H	METAL OXIDE 2W 560	
R406	ERDS2TJ334	330K	
R409	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R410	ERDS2TJ272	2.7K	
R411	ERDS2TJ104	100K	
R413	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R414	ERX1SJ1R2P	METAL OXIDE 1W 1.2	⚠ MKA
R422	ERD25FJ101P	100	⚠
R427	ERQ14AJ5R6P	FUSE 5.6	⚠ MKA
R431	ERDS2TJ103	10K	
R432	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R433	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R434	ERDS2TJ103	10K	
R435	ERDS2TJ102	1K	
R436	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R466	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R468	ERDS2TJ102	1K	
R469	ERDS2TJ222	2.2K	
R470	ERDS2TJ222	2.2K	
R471	ERDS2TJ561	560	
R472	ERDS2TJ561	560	
R473	ERDS2TJ101	100	
R474	ERDS1TJ102	1/2W 1K	
R475	ERDS1TJ102	1/2W 1K	
R476	ERDS2TJ561	560	
R477	ERDS2TJ102	1K	
R478	ERDS2TJ332	3.3K	
R480	ERDS1TJ391	1/2W 390	
R481	ERDS1TJ122	1/2W 1.2K	
R482	ERDS2TJ150	15	
R486	ERDS2TJ561	560	
R487	ERDS1TJ122	1/2W 1.2K	
R503	ER0S2THF1072	METAL FILM 10.7K	MKA
R509	ERDS2TJ101	100	
R510	ERDS2TJ472	4.7K	
R515	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R519	ERDS2TJ123	12K	
R520	ERDS2TJ562	5.6K	
R523	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R524	ERDS2TJ223	22K	
R525	ERDS2TJ222	2.2K	
R541	ERDS2TJ473	47K	
R542	ERDS2TJ103	10K	
R543	ERDS2TJ472	4.7K	
R545	ERDS2TJ331	330	
R546	ERDS2TJ103	10K	
R547	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R548	ERDS2TJ104	100K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C401	ECEA1HGE2R2	ELECTROLYTIC 50V 2.2	
C402	ECA1CM471B	ELECTROLITIC 16V 470	
C408	ECA1HGE010KB	ELECTROLYTIC 50V 1	MKA
C409	ECA1VM101B	ELECTROLYTIC 35V 100	
C413	ECQB1H104KF	POLYESTER 50V 0.1	
C414	ECA1CM222E		MKA
C418	ECA1VM221B	ELECTROLYTIC 35V 220	
C458	ECQB1H103KM	POLYESTER 50V 0.01	MKA
C541	ECA1HM100B	ELECTROLYTIC 50V 10	
C543	ECA1HM100B	ELECTROLYTIC 50V 10	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P451	VJHS0291	11P	
P452	VJHS0299	9P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
96	TMM7464-1	CLAMPER	MKA
483	XYN3+F10S	SCREW W/WASHER,STEEL	
713	VMAS1912	P.C.B. SUPPORT ANGLE	
765	LSSC0254	VERTICAL HEAT SINK	MKA

13.3.7. OPERATION C.B.A.

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6383	ERDS2TJ182	1.8K	
R6384	ERDS2TJ392	3.9K	
R6386	ERDS2TJ182	1.8K	
R6387	ERDS2TJ392	3.9K	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P6381	VJPS0273	CONNECTOR 3P	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6381	EVQ21405R	PUSH SWITCH	
SW6382	EVQ21405R	PUSH SWITCH	
SW6383	EVQ21405R	PUSH SWITCH	
SW6384	EVQ21405R	PUSH SWITCH	
SW6385	EVQ21405R	PUSH SWITCH	
SW6386	EVQ21405R	PUSH SWITCH	

13.3.8. AUDIO/VIDEO JACK C.B.A

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4591	RD9.1EW	ZENER 9.1V	
D4592	MA165-TA5.VT		
D4593	MA165-TA5.VT		
D4789	MA165-TA5.VT		
D4790	MA165-TA5.VT		
D4797	MA165-TA5.VT		
D4798	MA165-TA5.VT		

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4591	ERDS2TJ681	680	
R4592	ERDS2TJ681	680	
R4593	ERDS2TJ681	680	
R4594	ERDS2TJ681	680	
R4791	ERDS2TJ750	75	
R4792	ERDS2TJ561	560	
R4793	ERDS2TJ561	560	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4591	VEKS5791	CONNECTOR CABLE W/PLUG,12V	MKA
P4791	VEKS5792	CONNECTOR CABLE W/PLUG,12V	MKA

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4591	LJP28015A	FRONT AUDIO/VIDEO JACK SOCKET	MKA
JK4791	LJP68004A	EARPHONE JACK SOCKET	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
JA	VEKS5705	GROUNDING WIRE	MKA
714	VMTS0059	CUSHION,RUBBER	

13.3.9. CRT C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q351	2SC3063		MKA
	OR 2SC3271F(N)		MKA
	OR 2SC3619		MKA
Q352	2SC3063		MKA
	OR 2SC3271F(N)		MKA
	OR 2SC3619		MKA
Q353	2SC3063		MKA
	OR 2SC3271F(N)		MKA
	OR 2SC3619		MKA

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R351	ERG2ANJ153H	METAL OXIDE 2W 15K	
R352	ERG2ANJ153H	METAL OXIDE 2W 15K	
R353	ERG2ANJ153H	METAL OXIDE 2W 15K	
R354	ERD25TJ272	2.7K	
R355	ERD25TJ272	2.7K	
R356	ERD25TJ272	2.7K	
R357	ERDS2TJ332	3.3K	
R358	ERDS2TJ332	3.3K	
R359	ERDS2TJ332	3.3K	
R360	ERDS2TJ331	330	
R361	ERDS2TJ331	330	
R362	ERDS2TJ331	330	
R363	ERDS2TJ101	100	
R364	ERDS2TJ101	100	
R365	ERDS2TJ101	100	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C351	VCYSARH561KB	CERAMIC 50V 560P	
C352	VCYSARH561KB	CERAMIC 50V 560P	
C353	VCYSARH681KB	CERAMIC 50V 680P	
C354	VCKSKZM102KB	CERAMIC 2KV 1000P	MKA

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P351	VJWS4MN460AC	PARALLEL CONNECTOR 4P	MKA
P352	VJWS4NN430AC	PARALLEL CONNECTOR 4P	MKA
P353	TJSC01200	CRT SOCKET	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
153	TMM7443-1	CLAMPER	

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (VIDEO/AUDIO SECTION)

MODE / PIN NO.	STOP
IC4001	
1	4.6
2	4.6
3	3.5
4	-4.8
5	3.0
6	4.6
7	4.6
8	4.9
IC4002	
1	0
2	4.6
3	4.6
4	0
5	0
6	0
7	0
8	0
9	5.0
10	0
11	0
12	0
13	4.6
14	0
15	4.6
16	4.9
IC4003	
1	4.6
2	0
3	0
4	0
5	0
6	0
7	-4.8
8	0
9	0
10	5.0
11	0
12	4.6
13	0
14	0
15	0
16	4.9
IC4004	
1	0
2	0
3	0
4	-4.8
5	0
6	0
7	0
8	4.9
IC4005	
1	0
2	0

MODE / PIN NO.	STOP
3	0
4	-4.8
5	0
6	0
7	0
8	4.9
IC4006	
1	6.4
2	0
3	6.4
4	0
5	1.8
6	6.1
7	6.2
8	0
9	6.2
10	14.5
IC4007	
1	6.4
2	0
3	6.4
4	0
5	1.8
6	6.0
7	6.1
8	0
9	6.2
10	14.5
IC4201	
1	0.1
2	0
3	0
4	-4.8
5	0
6	0
7	0
8	5.0
IC4901	
1	4.2
2	4.1
3	4.3
4	0.1
5	2.1
6	0
7	0.1
8	0.5
9	0.5
10	0.5
11	0.5
12	0.5
13	0.5
14	0.4
15	0.4
16	4.2
17	4.4

MODE / PIN NO.	STOP
18	0.8
19	0
20	4.1
21	1.8
22	4.2
23	4.2
24	4.2
25	4.2
26	1.8
27	4.2
28	4.1
29	4.2
30	4.1
IC4902	
1	4.2
2	4.2
3	4.2
4	0
5	4.2
6	4.2
7	4.2
8	9.1
IC5301	
1	3.4
2	2.9
3	3.9
4	5.4
5	2.1
6	2.2
7	6.2
8	0.2
9	0
10	3.9
11	5.0
12	---
13	4.2
14	6.2
15	4.4
16	0.8
17	0
18	1.0
19	2.1
20	0
21	3.7
22	3.5
23	3.5
24	9.1
25	3.6
26	9.1
27	0.1
28	0.1
29	0.1
30	5.2
31	6.3
32	2.2

MODE / PIN NO.	STOP
33	6.9
34	0.1
35	5.1
36	4.2
37	9.7
38	9.1
39	2.2
40	2.3
41	2.5
42	0
43	4.7
44	4.8
45	0.1
46	2.7
47	5.1
48	2.7
IC5501	
1	0
2	-0.2
3	-0.2
4	-0.2
5	-0.2
6	0
7	-5.0
8	0
9	5.0
10	0
11	-0.3
12	0
13	0
14	0
15	0
16	5.2
IC5502	
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	5.0
10	0
11	0
12	0
13	0
14	0
15	0
16	5.2
IC5503	
1	4.3
2	0
3	4.0
4	5.0

MODE / PIN NO.	STOP
5	4.3
6	9.1
7	4.2
8	0
IC5504	
1	4.0
2	4.0
3	0
4	0
5	7.1
6	4.0
7	4.4
8	9.1
Q3001	
E	-0.6
C	4.9
B	0
Q3002	
E	-0.7
C	4.9
B	0
Q3003	
E	0
C	-4.8
B	-0.6
Q3004	
E	-0.7
C	4.3
B	0
Q3005	
E	4.9
C	2.5
B	4.3
Q3006	
E	1.9
C	4.9
B	2.5
Q3007	
E	1.0
C	-4.9
B	0.4
Q3008	
E	1.1
C	-4.8
B	0.4
Q3011	
E	-2.2
C	4.3
B	-1.5
Q3012	
E	-2.2
C	4.3
B	-1.5

MODE / PIN NO.	STOP
Q3013	
E	5.0
C	2.0
B	4.3
Q3014	
E	4.9
C	1.9
B	4.3
Q3015	
E	1.4
C	5.0
B	2.0
Q3016	
E	1.3
C	5.0
B	1.9
Q3017	
E	-1.1
C	-4.9
B	-1.8
Q3018	
E	-2.6
C	-4.8
B	-3.3
Q3019	
E	9.8
C	0
B	6.9
Q4003	
E	0
B	-5.7
Q4004	
E	0
C	0
B	-6.2
Q4005	
E	4.9
C	-8.3
B	5.1
Q4006	
E	0
C	5.1
B	0
Q4201	
E	-0.8
C	5.0
B	-0.1
Q4202	
E	-0.8
C	5.0
B	-0.1
Q4901	
E	0
C	4.9

MODE / PIN NO.	STOP
B	0
Q4902	
E	0
C	0
B	0
Q5302	
E	9.1
C	11.8
B	9.7
Q5303	
E	3.2
C	9.1
B	3.9
Q5304	
E	6.3
C	9.1
B	6.7
Q5501	
E	-0.8
C	-5.0
B	-1.5
Q5502	
E	-1.5
C	4.5
B	-0.8
Q5503	
E	5.2
C	1.1
B	4.5
Q5504	
E	2.0
C	0
B	1.3
Q5505	
E	0
C	0
B	4.9
TP3001	8.9
TP3301	0.1
TP3302	0.1
TP4001	3.6
TP4002	0
TP4003	14.8
TP4004	5.8
TP4005	2.6
TP4006	2.5
TP4007	0
TP4008	0
TP4009	0
TP4901	0
TP4902	4.2
TP4903	4.2
TP4905	0
TP4906	4.6

MODE / PIN NO.	STOP
TP4907	4.5
TP5301	3.2
TP5302	-1.1
TP5303	-0.8
TP5304	0
TP5305	0
TP5306	3.9
TP5307	0
TP5308	5.0
TP5309	4.7
TP5310	1.7
TP5311	0.8
TP5312	3.5
TP5313	3.5
TP5314	3.7
TP5315	2.1
TP5316	2.3
TP5317	6.8
TP5318	3.6
TP5319	4.9
TP5320	0
TP5321	-0.1

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NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE / PIN NO.	REC	PLAY
IC6001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0.3	0.3
6	4.9	4.9
7	0	0
8	5.0	5.0
IC6002		
1	0	0
2	0	0
3	0.1	0.1
4	0	0
5	0	5.0
6	0	0
7	0	3.0
8	0	0
9	0	0
10	0	0
11	4.8	---
12	3.3	0
13	4.4	4.4
14	0.1	5.0
15	0	0
16	4.3	4.2
17	0	0
18	2.3	2.3
19	2.6	0
20	5.0	5.0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	4.8
27	0	4.9
28	0	4.9
29	0	0
30	0	0
31	0	0
32	4.1	4.0
33	4.1	0.5
34	0	4.1
35	0	4.0
36	0	0
37	4.1	4.1
38	0	4.0
39	4.5	4.5
40	0	0
41	0.3	0.3
42	0.3	0.3
43	0.3	5.0
44	4.1	0.3
45	0.3	4.1
46	4.9	4.7
47	0	0.2
48	0.3	0
49	0.3	0
50	0.3	0
51	0.3	0
52	0.3	0.2
53	5.0	0.6
54	0.3	5.0
55	0	0.6
56	0.3	0.6
57	0.2	0.2
58	5.0	5.0
59	4.7	4.6
60	0.2	0.3
61	0.3	5.0
62	0.3	2.7
63	0.5	0.2
64	0.5	2.7
65	0.5	0.7
66	0.5	0.7
67	0.5	0.7
68	0.5	0.3
69	5.0	5.0
70	0.4	0.5
71	0.5	0.5
72	5.0	0.5
73	5.0	0.5
74	5.0	0.5
75	0.5	0.4
76	0.4	0.4
77	0.3	0.3
78	0.3	0.3
79	0.4	4.8
80	0.4	0.4
81	0.3	0.4
82	0.3	0
83	0	0
84	0.4	0.6
85	0.2	0.4
86	0.4	0.4
87	0.3	0.7
88	0.4	0.3
89	2.4	0.3
90	0	2.5
91	5.0	0
92	0.3	5.0
93	0.3	0.2
94	0	2.5
95	0	0.2
96	0	0.2
97	0	0.5
98	0	0.2
99	0	0.4
100	0.4	0.3
IC6003		
1	1.8	1.8
2	2.6	2.6
3	3.9	4.1
4	0	0
5	2.6	2.6
6	3.2	3.2
7	5.0	5.0
8	0	5.0
9	0	0.3
10	5.0	5.0
11	0	0
12	0	0
13	5.0	5.0
14	2.8	0.3
15	2.7	2.7
16	0	0.3
17	4.8	4.8
18	0	3.3
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	2.5
25	0	0
26	0	0
27	0	0
28	0	0
29	3.8	3.8
30	0	0
31	0	0
32	0	0
33	0	0.5
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0.3
43	4.4	4.7
44	3.3	3.3
45	4.7	4.7
46	0	5.0
47	1.9	5.0
48	0	0.3
IC6501		
1	5.0	5.0
2	5.0	5.0
3	0	0
4	0	0
IC6502		
1	0	5.0
2	5.0	5.0
3	0	0.3
4	5.0	0.3
5	5.0	0
6	5.0	5.0
7	5.0	0
8	5.0	0
9	0	0
10	5.0	0
11	5.0	0
12	0	0
13	5.0	0
14	0	0
15	0	5.0
16	0	5.0
17	5.0	5.0
18	3.3	3.3
19	4.4	4.7
20	4.8	4.8
21	5.0	5.0
22	5.0	5.0
23	0	5.0
24	5.0	5.0
25	0	0
26	---	0.4
27	0	0.4
28	5.0	5.0
29	5.0	0
30	5.0	0
31	5.0	4.9
32	0	0
33	4.9	4.9
34	5.0	5.0
35	5.0	5.0
36	5.0	5.0
37	1.8	1.8
38	4.8	0
39	0	0
40	3.0	3.0
41	2.6	2.5
42	0	0
43	4.5	4.5
44	0.3	0.4
45	0.3	0.4
46	0.3	0.4
47	0	0
48	4.9	4.9
49	2.5	2.5
50	5.0	0
51	0.5	0
52	0	0
53	0	0
54	0	0
55	0	5.0
56	0.4	0.4
57	0	5.0
58	0	0
59	0	0
60	0	0
61	4.7	4.8
62	4.7	4.8
63	4.7	4.8
64	4.7	4.8
Q6001		
E	2.7	2.7
C	0	0
B	2.1	2.1
Q6002		
E	5.0	5.0
C	4.8	4.8
B	1.6	1.6
Q6003		
E1	1.4	1.4
C1	5.1	5.1
B1	2.1	2.1
E2	1.4	1.4
C2	1.6	1.6
B2	1.7	0
Q6004		
E	0	0
C	4.0	4.0
B	-0.4	-0.4
TP6002	4.8	4.8
TP6003	5.0	5.0
TP6004	0	0
TP6005	2.6	2.5
TP6006	2.7	2.7
TP6007	0	0
TP6501	5.0	5.0

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NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

POWER SUPPLY C.B.A

MODE / PIN NO.	STOP
IC1001	
1	4.2
2	14.7
3	0
4	0.7
5	0.6
6	3.6
7	0
8	0
IC1101	
1	7.0
2	5.5
3	8.5
4	8.6
5	7.0
IC1102	
1	5.3
2	0
3	5.6
4	0
5	5.0
6	0
7	5.4
8	16.8
IC1301	
1	5.5
2	10.2
3	9.8
IC1501	
1	8.7
2	8.7
3	11.6
4	1.4
5	12.9
6	8.6
7	8.7
8	8.3
IC1502	
1	8.6
2	8.8
3	12.9
4	0.3
5	0.2
6	8.6
7	8.6
8	8.3
Q1001	
E	0
C	137.1
B	3.1
Q1101	
E	5.0
C	16.9
B	5.2

MODE / PIN NO.	STOP
Q1201	
E	16.7
C	16.7
B	17.6
Q1202	
E	0.2
C	0
B	1.2
Q1203	
E	9.7
C	11.4
B	10.3
Q1204	
E	16.9
C	16.9
B	17.5
Q1205	
E	5.8
C	17.5
B	5.1
Q1206	
E	9.8
C	9.8
B	10.5
Q1207	
E	11.6
C	11.6
B	12.2
Q1208	
E	1.6
C	0.5
B	0.6
Q1301	
E	5.5
C	5.7
B	9.8
Q1302	
E	14.1
C	14.7
B	14.7
Q1303	
E	0
C	16.7
B	5.6
Q1304	
E	9.8
C	9.8
B	14.8
Q1306	
E	33.2
C	34.4
B	33.8
Q1307	
E	16.7
C	16.9

MODE / PIN NO.	STOP
B	17.2
Q1308	
E	5.5
C	17.2
B	5.2
Q1501	
E	0
C	5.0
B	5.6
Q1503	
E	11.7
C	16.6
B	5.3
Q1504	
E	11.0
C	5.1
B	5.3
TP1001	0
TP1002	134.7
TP1003	14.7
TP1004	0
TP1005	0
TP1101	5.0
TP1102	7.4
TP1103	5.2
TP1104	5.4
TP1201	9.7
TP1202	33.2
TP1203	16.7
TP1204	9.7
TP1205	9.9
TP1206	1.1
TP1207	5.7
TP1208	9.8
TP1209	5.2
TP1301	16.7
TP1302	9.8
TP1303	11.4
TP1304	4.9
TP1501	11.5
TP1502	11.0

TV MAIN C.B.A.

MODE / PIN NO.	STOP
IC501	
1	0
2	0
3	0
4	12.2
IC801	
1	0
2	122.4
3	125.7
4	121.3
5	0
Q501	
E	0
C	82.7
B	0
Q551	
E	0
C	393.4
B	0
Q571	
E	1.7
C	10.6
B	2.1
Q581	
E	121.3
C	0
B	120.5
Q801	
E	0
C	0
B	0.8
TP501	120.9
TP502	0
TP551	-14.3
TP552	-15.7
TP556	202.6
TP558	24.2
TP559	16.0
TP801	120.0
TP802	120.0
TP803	120.0
TP804	120.0
TP808	0
TP809	0
TP810	0
TP812	120.0
TP813	120.0
TP814	120.0
TP891	121.3
TP892	125.7
TP893	0

INFRARED C.B.A.

MODE / PIN NO.	STOP
IC6351	
1	0
2	---
3	0

CRT C.B.A.

MODE / PIN NO.	STOP
Q351	
E	3.0
C	144.0
B	3.6
Q352	
E	3.0
C	150.1
B	3.4
Q353	
E	3.0
C	150.8
B	3.4
TP47	0
TP49	0
TP50	150.7

VERTICAL C.B.A.

MODE / PIN NO.	STOP
IC451	
1	11.6
2	3.8
3	5.8
4	6.1
5	0
6	6.0
7	5.5
8	24.6
9	24.5
10	1.8
11	0
12	13.7
13	25.1
Q431	
E	2.9
C	0
B	2.2
Q432	
E	18.6
C	24.6
B	19.2
Q433	
E	19.1
C	14.3
B	18.5
Q434	
E	5.4
C	17.8
B	5.6
Q502	
E	0.7
C	12.2
B	0.2
Q506	
E	0.1
C	0
B	0
Q507	
E	0
C	0
B	0
Q541	
E	18.0
C	4.7
B	0
Q542	
E	0
C	18.0
B	0
TP553	0
TP554	0

AUDIO/VIDEO JACK C.B.A.

MODE / PIN NO.	STOP
TP4591	5.9
TP4592	3.7

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1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ⓘ :Test point with a jumper wire across a hole in P.C.B.
   ▭→ :Test point with a component lead on the foil side.
   ⊘ :Test point with no test pin.
   ● :Test point with a test pin.

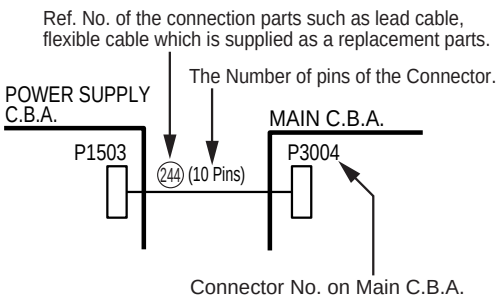
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V).....Zener Voltage

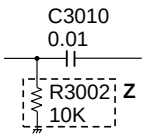
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to,
   in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.


Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
POWER SUPPLY C.B.A.
MAIN C.B.A.
P1503
244 (10 Pins)
P3004
Connector No. on Main C.B.A.

3. Parts enclosed in dashed lines marked "Z" are not used in any models included in this service manual.

   Example:



4. The part number shown on this drawing is only main part number,
   except for safety parts. Be sure to make your orders of replacement parts according to the parts list.

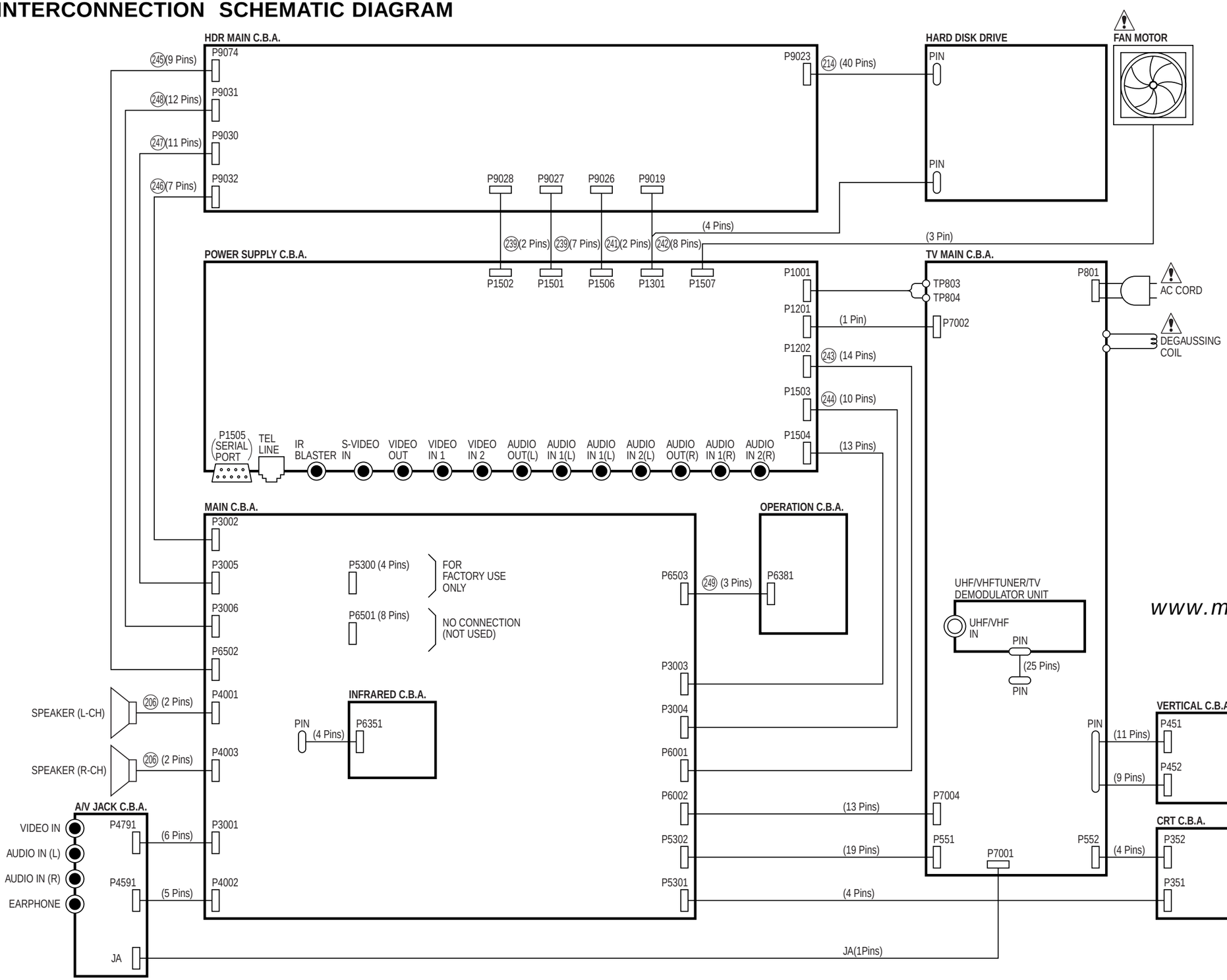
Voltage Chart Note

Voltage Measurement
   a. Color bar signal in SP mode.
   b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout includes components which are not used.
Please refer to the schematic diagram and parts list for properparts content.

INTERCONNECTION SCHEMATIC DIAGRAM



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
REFER TO "I/O CHART OF EACH CONNECTOR BETWEEN MAIN C.B.A./ POWER SUPPLY C.B.A. AND HDR MAIN C.B.A."

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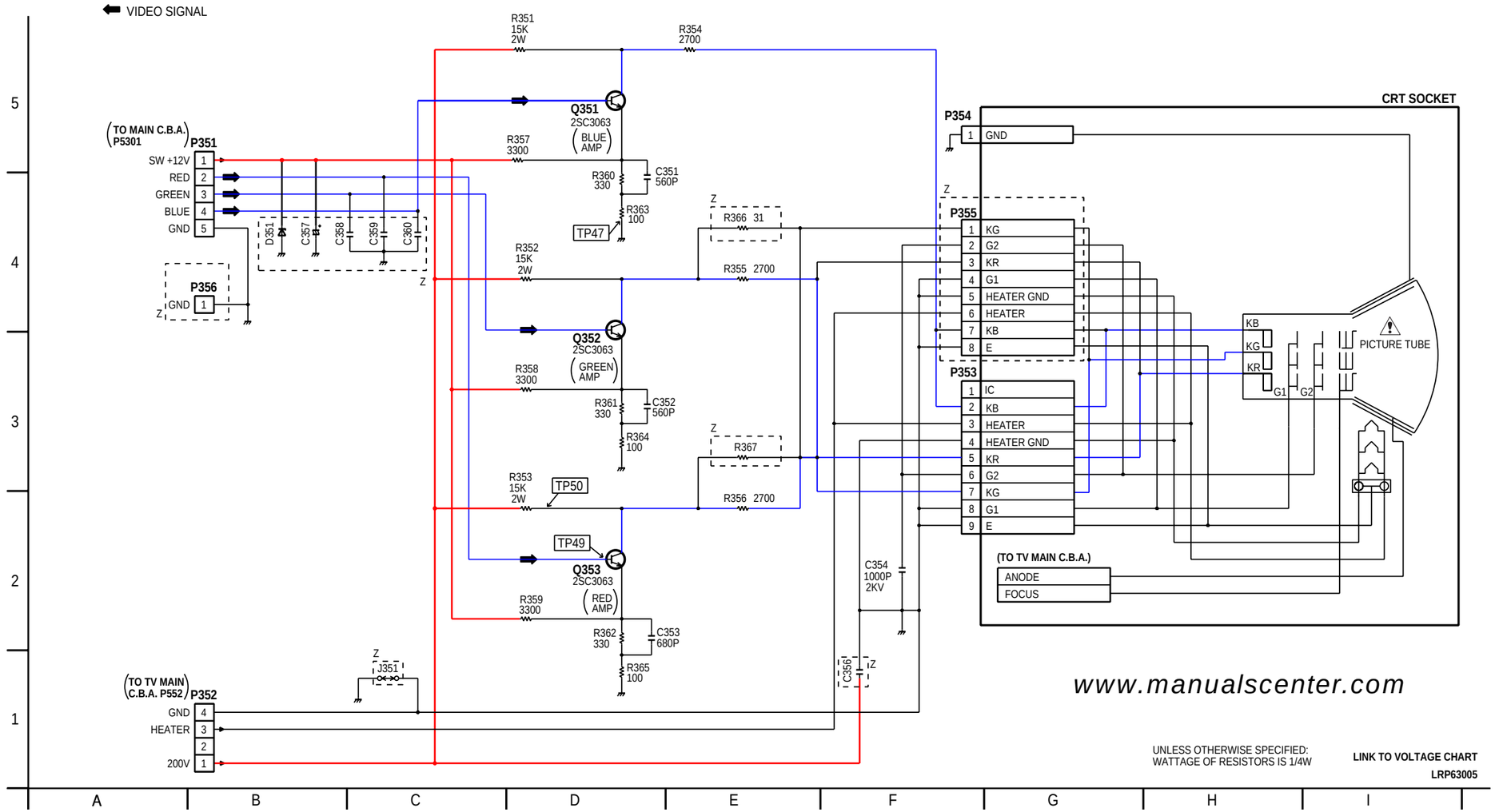
CRT SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



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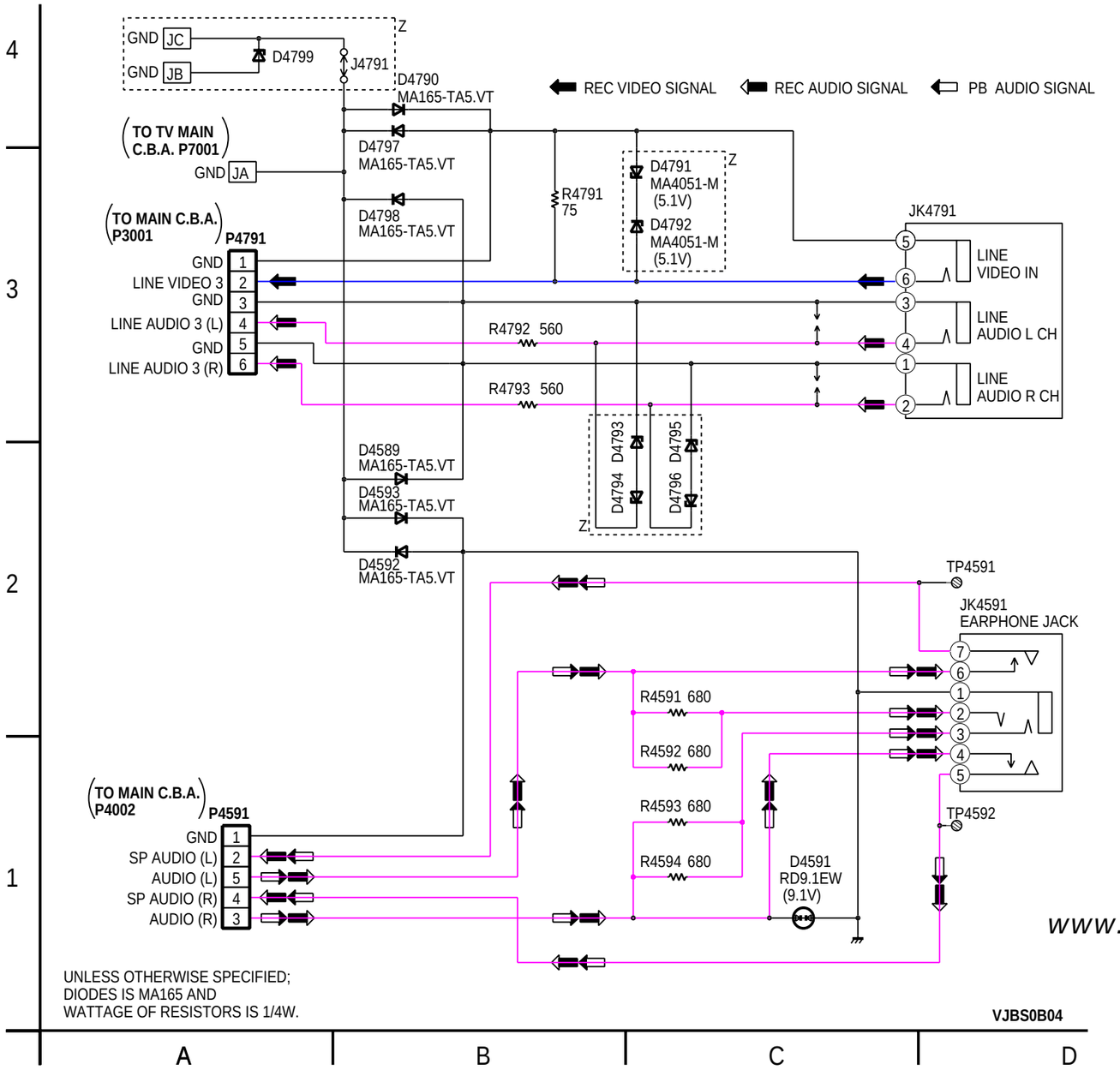
UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS IS 1/4W

LINK TO VOLTAGE CHART
LRP63005

AUDIO/VIDEO JACK SCHEMATIC DIAGRAM



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.

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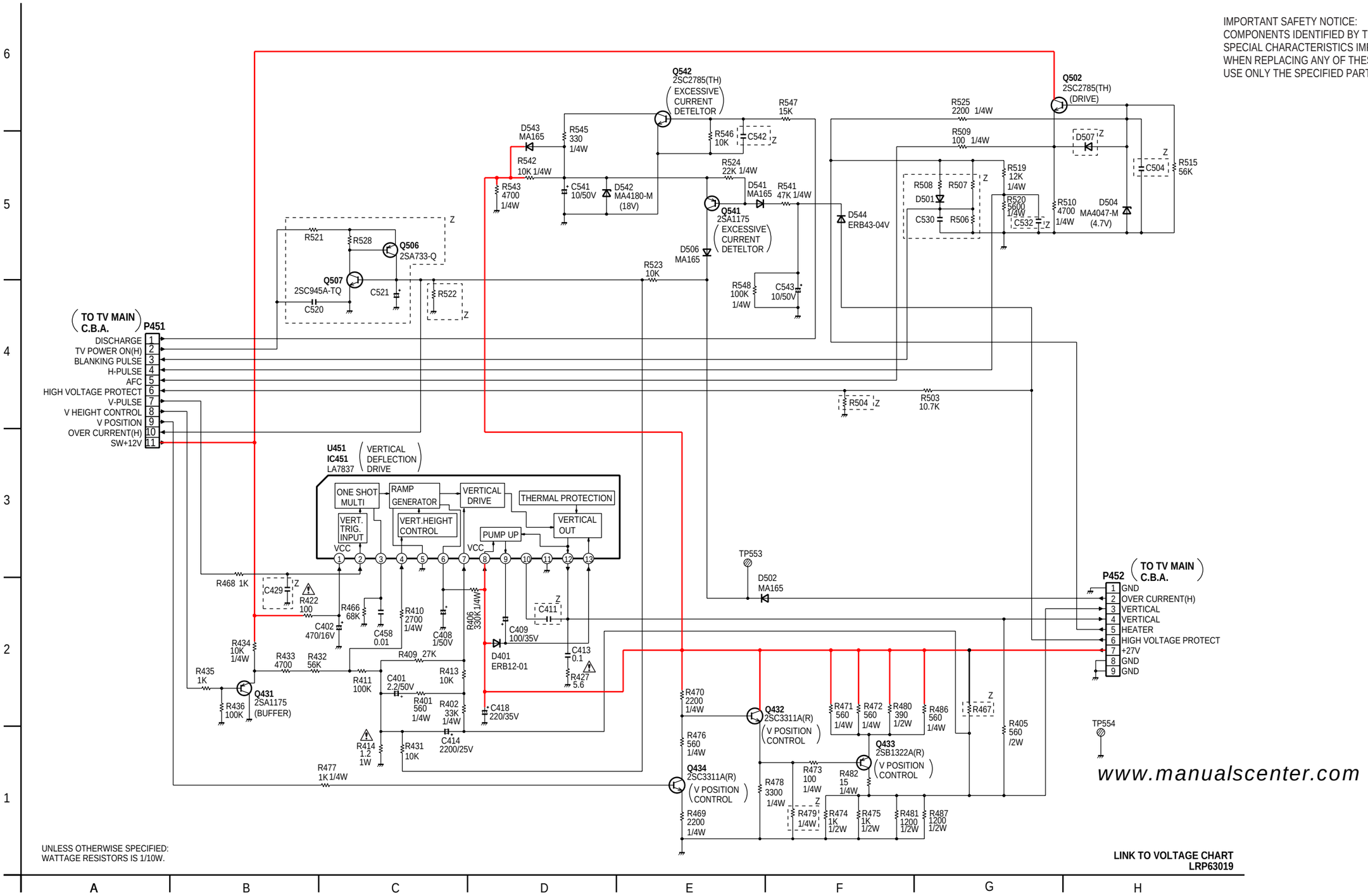
VERTICAL SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



UNLESS OTHERWISE SPECIFIED:
WATTAGE RESISTORS IS 1/10W.

LINK TO VOLTAGE CHART
LRP63019

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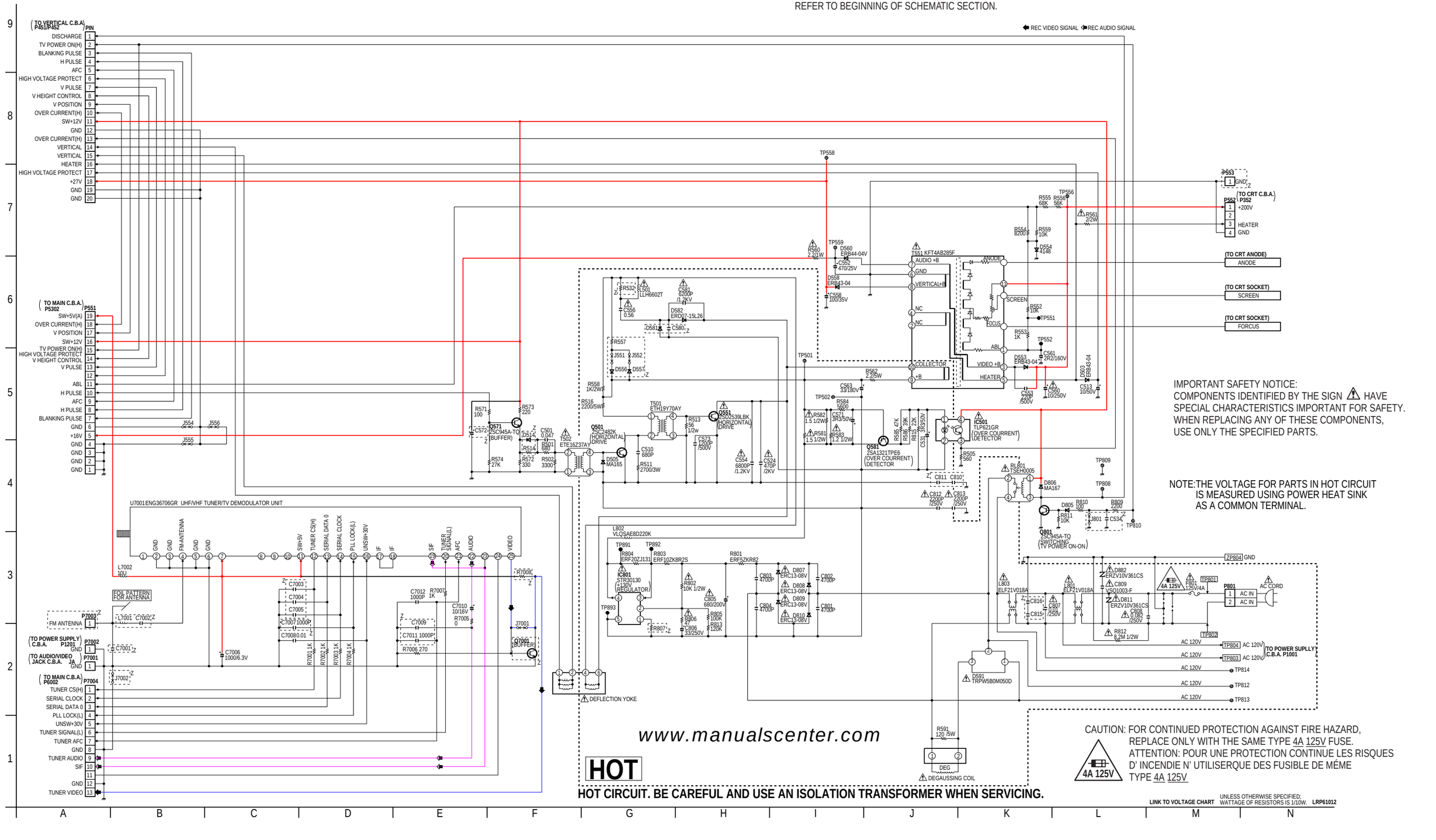
TV MAIN SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.



POWER SUPPLY I SCHEMATIC DIAGRAM

NOTE:THE VOLTAGE FOR PARTS IN HOT CIRCUIT IS MEASURED USING POWER HEAT SINK AS A COMMON TERMINAL.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME TYPE 1.6A 125V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

HOT

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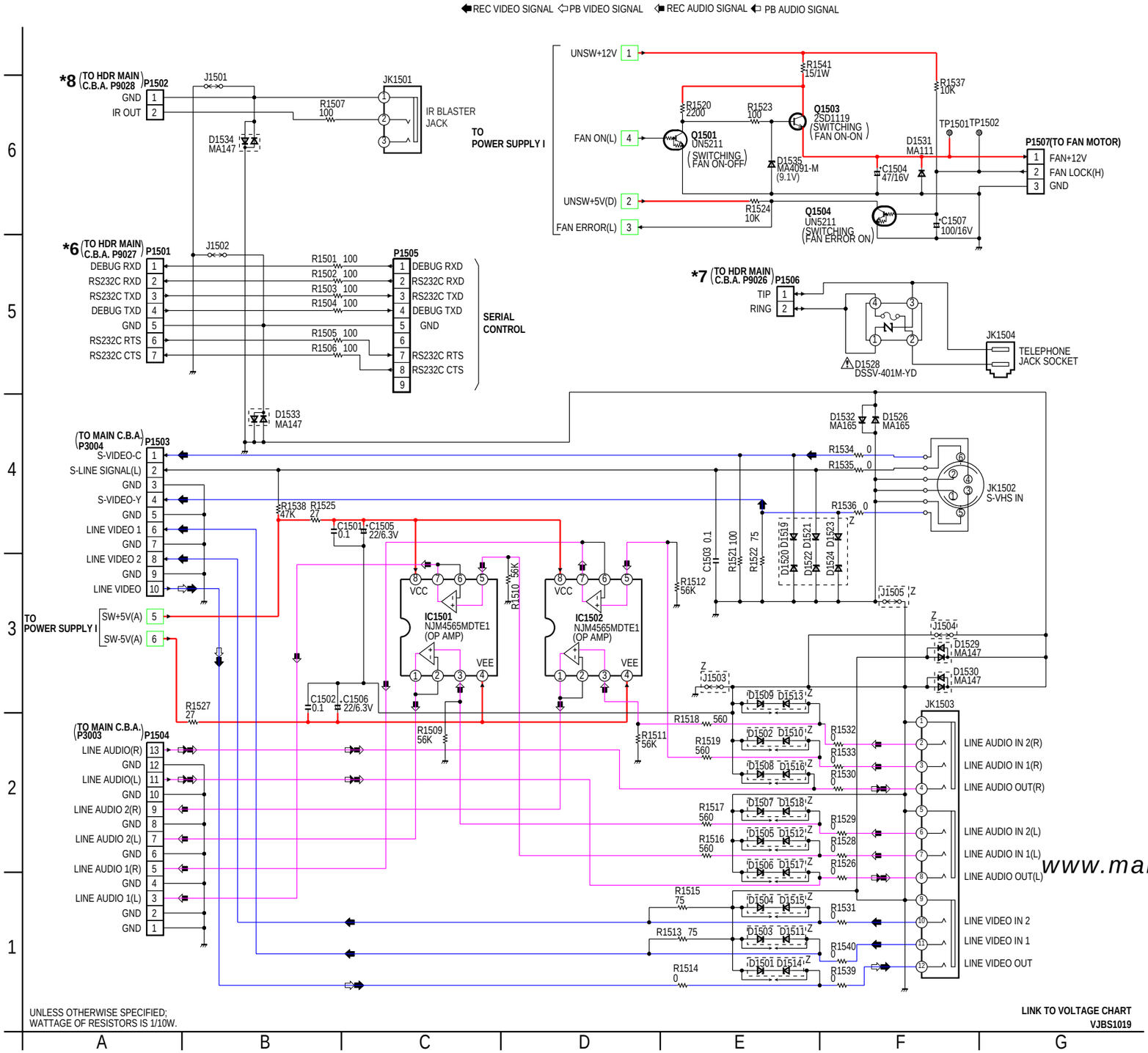
***5** NOTE:
REFER TO "I/O CHART OF EACH CONNECTOR BETWEEN MAIN C.B.A./ POWER SUPPLY C.B.A. AND HDR MAIN C.B.A."

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

LINK TO VOLTAGE CHART
VJBS1019

POWER SUPPLY II SCHEMATIC DIAGRAM



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W.

LINK TO VOLTAGE CHART
VJBS1019

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

***6,*7,*8** NOTE:
REFER TO "I/O CHART OF EACH CONNECTOR BETWEEN MAIN C.B.A./ POWER SUPPLY C.B.A. AND HDR MAIN C.B.A."

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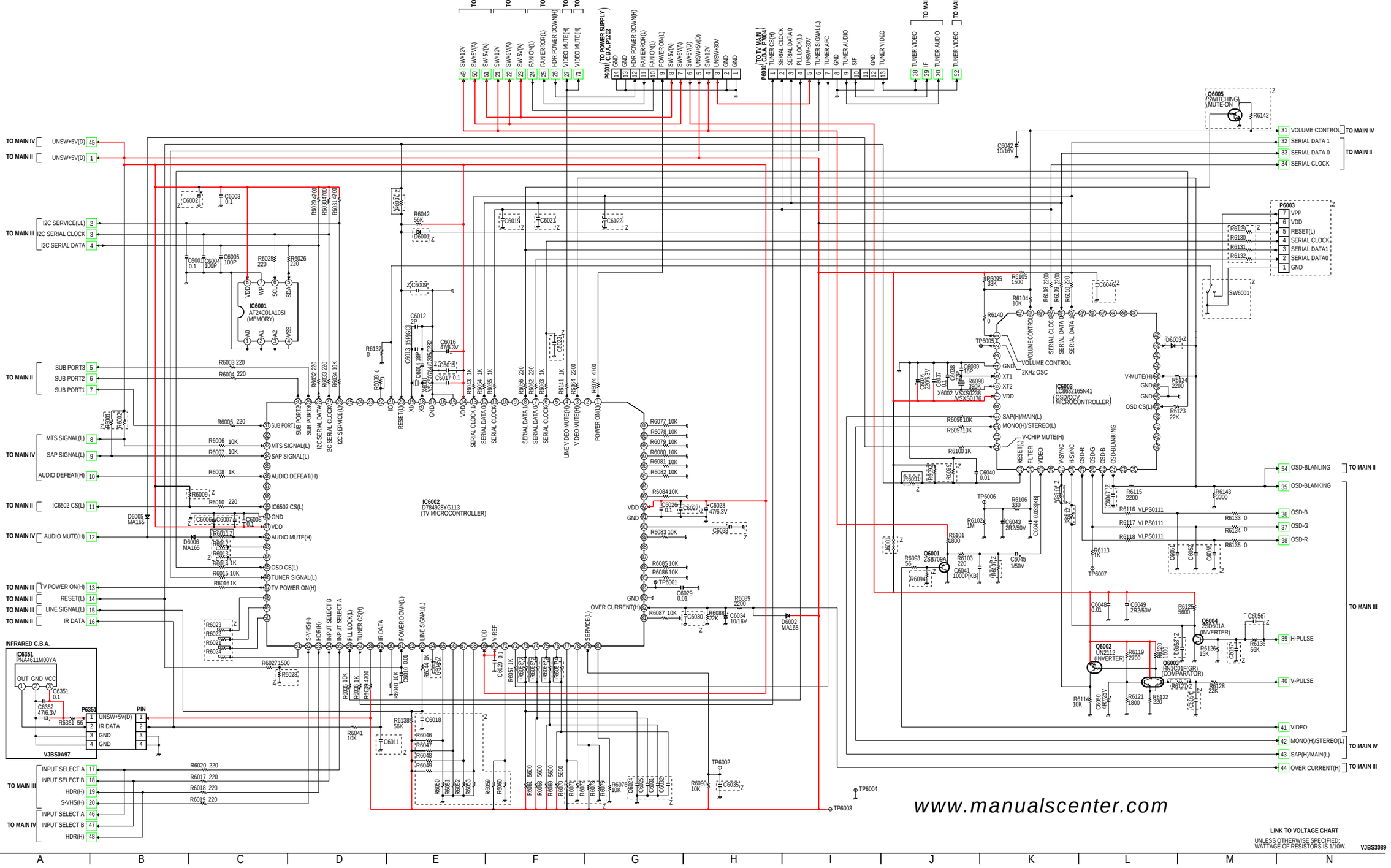
MAIN I / INFRARED SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



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MAIN II / OPERATION SCHEMATIC DIAGRAM

*1 NOTE:
REFER TO "I/O CHART OF EACH CONNECTOR BETWEEN MAIN C.B.A./ POWER SUPPLY C.B.A. AND HDR MAIN C.B.A."

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

P6501
NO CONNECTION (NOT USED)
GND
HDR SERIAL DATA 0
HDR SERIAL DATA 1
HDR SERIAL CLOCK
RESET(L)
UNSW+5V(D)
VPP
R6506 100
R6507 100
R6508 100
R6509 100
R6567 10K
SW6509 LSSS0014

*1 TO HDR MAIN C.B.A. P9704 P6502
HDR DETECT(L)
HDR RESET(L)
TV SUB TXD
TV SUB RXD
TV SUB RTS
TV SUB CTS
TV SUB RI
IR DATA
GND
R6510 0
R6511 100
R6512 100
R6513 100
R6514 100
R6515 100
R6516 100
C6501 C6502 C6503 C6504 C6505 C6506 Z

TO MAIN I
IR DATA 16
S-LINE SIGNAL(L) 53
TO MAIN IV

SW6503 EVQ21405R BYPASS
SW6505 EVQ21405R SELECT
SW6510 EVQ21405R STOP
R6501 3900
R6517 1800
R6518 5600
R6519 5600
R6524 5600
SW6501 EVQ21405R SLEEP
SW6504 EVQ21405R EXIT
SW6506 EVQ21405R CR UP
SW6511 EVQ21405R CR RIGHT
R6502 12K
R6504 3900
R6520 1800
SW6502 EVQ21405R REC
SW6507 EVQ21405R MENU
SW6508 EVQ21405R CR DOWN
SW6512 EVQ21405R CR LEFT
R6503 12K
R6505 3900
R6521 1800
C6507 C6508 C6509 Z

C6514 100/6.3V
C6512 47/6.3V
C6513 47/6.3V
C6517 0.1

D6502 PLAY/ DELAYED
D6503 POWER
D6504 NEW CONTENT
D6505 REC

R6530 10K
R6531 10K
R6532 10K
R6533 1Z
R6534 10K
R6535 10K
R6536 10K
R6537 10K
R6541 270
R6542 270
R6543 270
R6544 270

16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
VDD GND
PLAY LED ON(L)
POWER LED ON(L)
NEW CONTACT LED ON(L)
REC LED ON(L)

HDR SERIAL DATA 0
HDR SERIAL DATA 1
HDR SERIAL CLOCK

17 SERIAL DATA 0
18 SERIAL DATA 1
19 SERIAL CLOCK
20 TXD
21 RXD
22 VDD
23 GND
24 S-LINE SIGNAL(L)
25 KEY DATA 4
26 KEY DATA 3
27 KEY DATA 2
28 KEY DATA 1

R6525 10K
R6526 100
C6520 0.1
R6527 10K
R6528 2K

IC6502
UPD78F0034A
(SUB MICROCONTROLLER)

KEY DATA 0

TH6501 ERTD2FHK202S
Z C6521 0.1

33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
V-REF VDD RESET(L) VPP X2 X1 GND CS(L) FAN ON(L) FAN ERROR(L)

C6515 0.1
R6538 10K
R6539 10K
R6545 10K
R6546 10K

D6501 MA728
R6529 10K
R6540 Z
R6566 Z
X6501 EF0EC8384T4 8.38MHz

IC6501 S-80844ANNP (RESET)
VCC GND
C6516 0.1

R6522 5600
R6523 5600
C6510 C6511 Z

64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49
R6549 10K
R6550 10K
R6547 10K
R6548 10K
SUB PORT3
SUB PORT2
SUB PORT1
RESET(L)
TV SUB RI
TV SUB RTS
TV SUB CTS
HDR DETECT(L)
HDR RESET(L)
HDR POWER DOWN(H)
R6551 10K
R6552 10K
R6553 10K
TP6501

TO MAIN I
1 UNSW+5V(D)
33 SERIAL DATA 0
32 SERIAL DATA 1
34 SERIAL CLOCK
54 OSD-BLANKING
5 SUB PORT3
6 SUB PORT2
7 SUB PORT1
14 RESET(L)
26 HDR POWER DOWN(H)
25 FAN ERROR(L)
24 FAN ON(L)
11 IC6502 CS(L)

R6555 100
R6556 100
R6557 100
R6558 100
R6559 100
R6560 100
R6561 100
R6562 100
R6563 100
R6564 100
R6565 100

OPERATION C.B.A.
P6381
P6503
1 KEY DATA 1
2 KEY DATA 0
3 GND
SW6381 EVQ21405R INPUT
SW6384 EVQ21405R POWER
SW6382 EVQ21405R CH+
SW6385 EVQ21405R CH-
SW6383 EVQ21405R VOL+
SW6386 EVQ21405R VOL-
R6386 1800
R6383 1800
R6387 3900
R6384 3900
VJBS8061

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LINK TO VOLTAGE CHART
UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS IS 1/10W. VJBS3089

A B C D E F G H
5 4 3 2 1

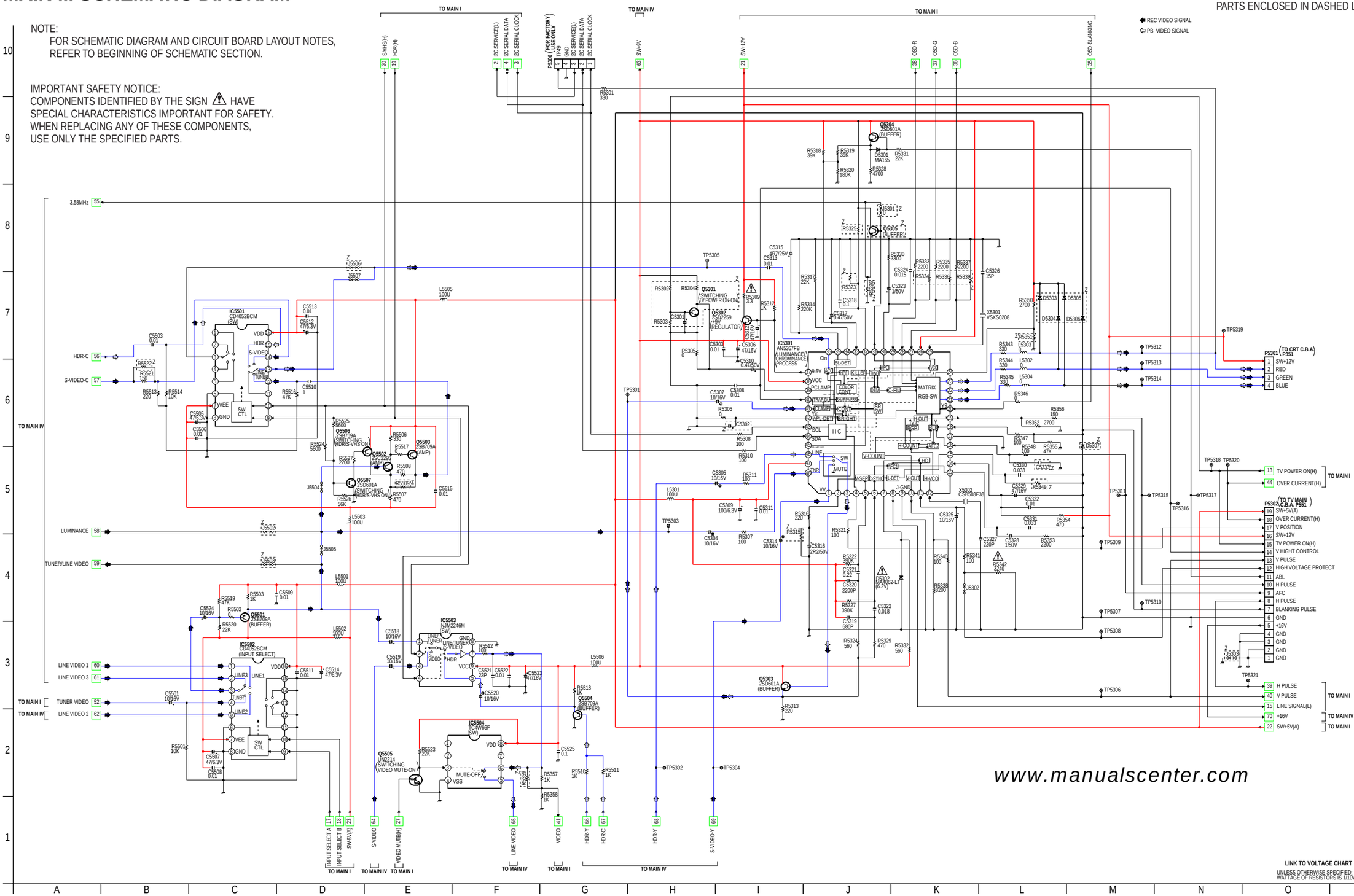
MAIN III SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

REC VIDEO SIGNAL
PB VIDEO SIGNAL



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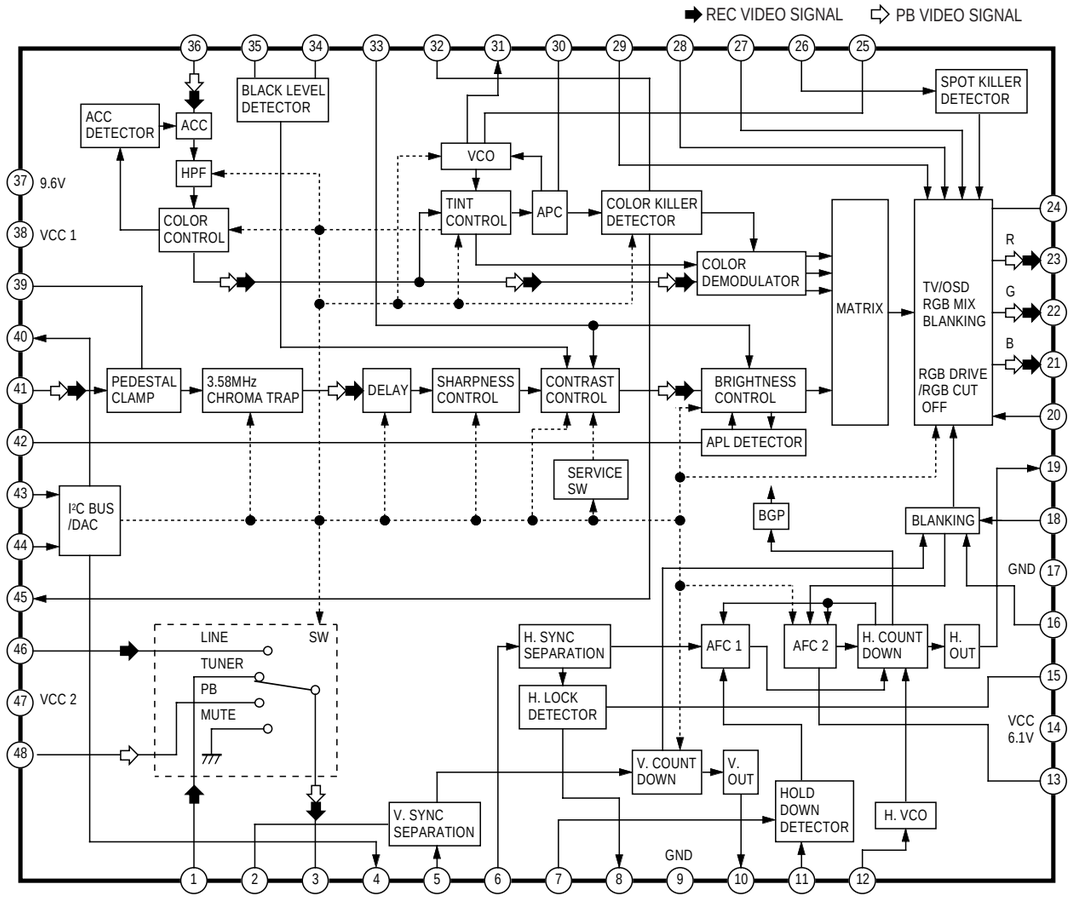
IC5301 LUMINANCE/CHROMINANCE PROCESS
IC-DETAIL BLOCK DIAGRAM, AN5367FB

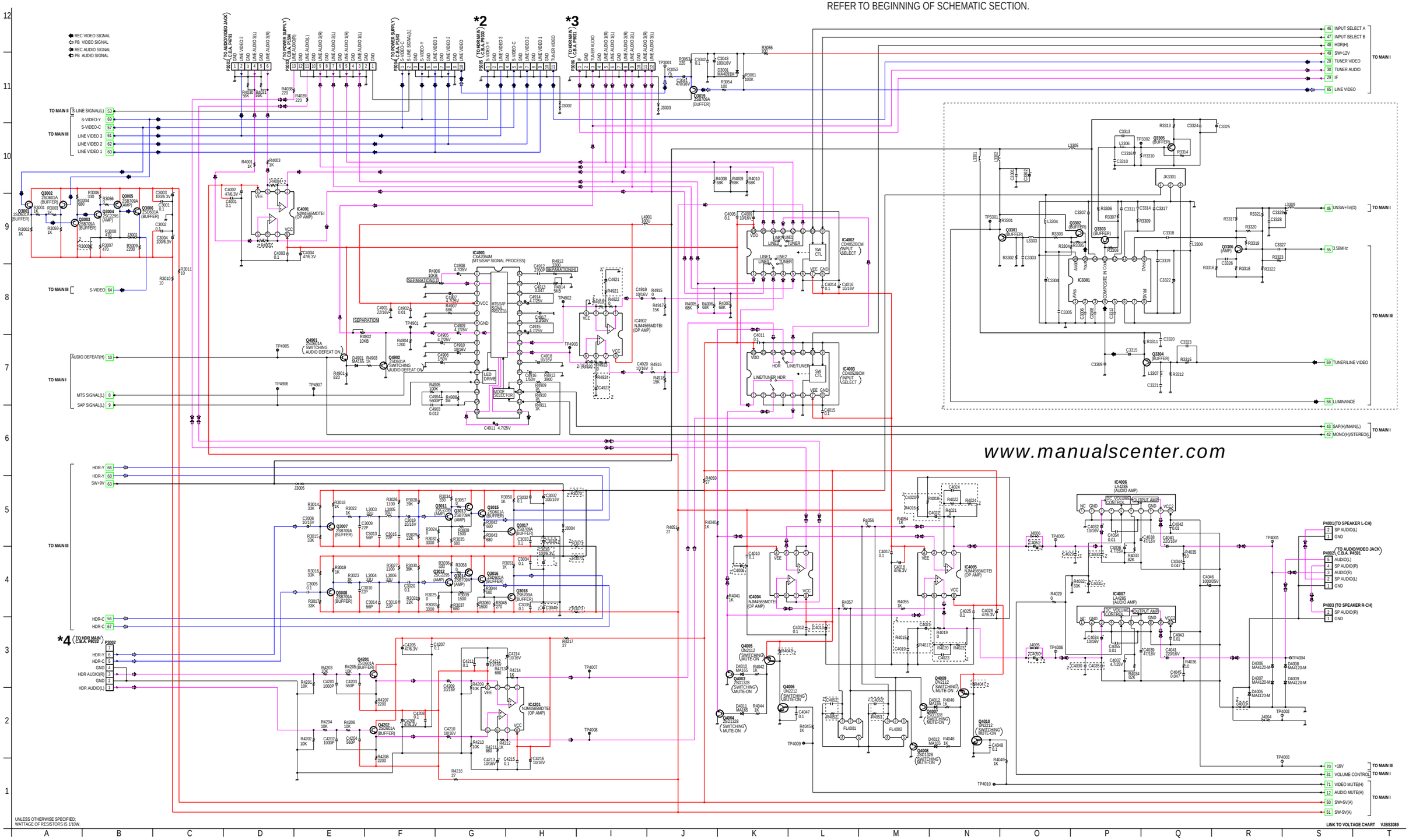


MAIN IV SCHEMATIC DIAGRAM

***2,*3,*4** NOTE:
REFER TO "I/O CHART OF EACH CONNECTOR BETWEEN MAIN C.B.A./ POWER SUPPLY C.B.A. AND HDR MAIN C.B.A."

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "Z" ARE NOT USED.



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(1) MAIN C.B.A.

P3002 (TO HDR MAIN C.B.A. P9032)

Pin No.	I/O	Signal Name	Description
1	I	HDR AUDIO(L)	HDR L-channel audio signal
2	-	GND	Grounding terminal
3	I	HDR AUDIO(R)	HDR R-channel audio signal
4	-	GND	Grounding terminal
5	I	HDR-C	HDR Chrominance signal
6	I	HDR-Y	HDR Luminance signal
7	-	---	---

P3005 (TO HDR MAIN C.B.A. P9030)

Pin No.	I/O	Signal Name	Description
1	O	S-VIDEO-Y	S-VHS Luminance signal
2	-	GND	Grounding terminal
3	O	LINE VIDEO 3	Line 3 Video signal
4	-	GND	Grounding terminal
5	O	S-VIDEO-C	S-VHS Chrominance signal
6	-	GND	Grounding terminal
7	O	LINE VIDEO 2	Line 2 Video signal
8	-	GND	Grounding terminal
9	O	LINE VIDEO 1	Line 1 Video signal
10	-	GND	Grounding terminal
11	O	TUNER VIDEO	Tuner Video signal

P3006 (TO HDR MAIN C.B.A. P9031)

Pin No.	I/O	Signal Name	Description
1	O	IF	Tuner IF signal
2	-	GND	Grounding terminal
3	O	TUNER AUDIO	Tuner Audio signal
4	-	GND	Grounding terminal
5	O	LINE AUDIO1(R)	Line 1R-channel audio signal
6	O	LINE AUDIO1(L)	Line 1L-channel audio signal
7	-	GND	Grounding terminal
8	O	LINE AUDIO2(R)	Line 2R-channel audio signal
9	O	LINE AUDIO2(L)	Line 2L-channel audio signal
10	-	GND	Grounding terminal
11	O	LINE AUDIO3(R)	Line 3R-channel audio signal
12	O	LINE AUDIO3(L)	Line 3L-channel audio signal

P6502 (TO HDR MAIN C.B.A. P9704)

Pin No.	I/O	Signal Name	Description
1	I	HDR DETECT(L)	HDR mode:low / TV mode:high
2	O	HDR RESET(L)	HDR reset signal:low
3	I	TV SUB TXD	TV transmitted data
4	O	TV SUB RXD	TV received data
5	I	TV SUB RTS	TV request to send signal
6	O	TV SUB CTS	TV clear to send signal
7	O	TV SUB RI	TV ring indicator signal
8	O	IR DATA	IR serial data
9	-	GND	Grounding terminal

(2) POWER SUPPLY C.B.A.

P1301 (TO HDR MAIN C.B.A. P9019)

Pin No.	I/O	Signal Name	Description
1	O	HDR+12V	Power supply terminal(unsw+12V)
2	O	HDR+12V	Power supply terminal(unsw+12V)
3	-	GND	Grounding terminal
4	-	GND	Grounding terminal
5	-	GND	Grounding terminal
6	O	HDR+6.5V	Power supply terminal(unsw+6.5V)
7	O	HDR+5V	Power supply terminal(unsw+5V)
8	O	HDR+5V	Power supply terminal(unsw+5V)
9	O	HDD+5V	Power supply terminal(unsw+5V)
10	-	GND	Grounding terminal
11	-	GND	Grounding terminal
12	O	HDR+12V	Power supply terminal(unsw+12V)

P1501 (TO HDR MAIN C.B.A. P9027)

Pin No.	I/O	Signal Name	Description
1	O	DEBUG RXD	RS232C Received data(for PTV)
2	O	RS232C RXD	RS232C Received data(for PMON)
3	I	RS232C TXD	RS232C Transmitted data(for PMON)
4	I	DEBUG TXD	RS232C Transmitted data(for PTV)
5	-	GND	Grounding terminal
6	I	RS232C RTS	RS232C Request to send signal
7	O	RS232C CTS	RS232C Clear to send signal

P1502 (TO HDR MAIN C.B.A. P9028)

Pin No.	I/O	Signal Name	Description
1	-	GND	Grounding terminal
2	I	IR DATA	IR Blaster data

P1506 (TO HDR MAIN C.B.A. P9026)

Pin No.	I/O	Signal Name	Description
1	I/O	TIP	Telephone line(Tip)
2	I/O	RING	Telephone line(Ring)

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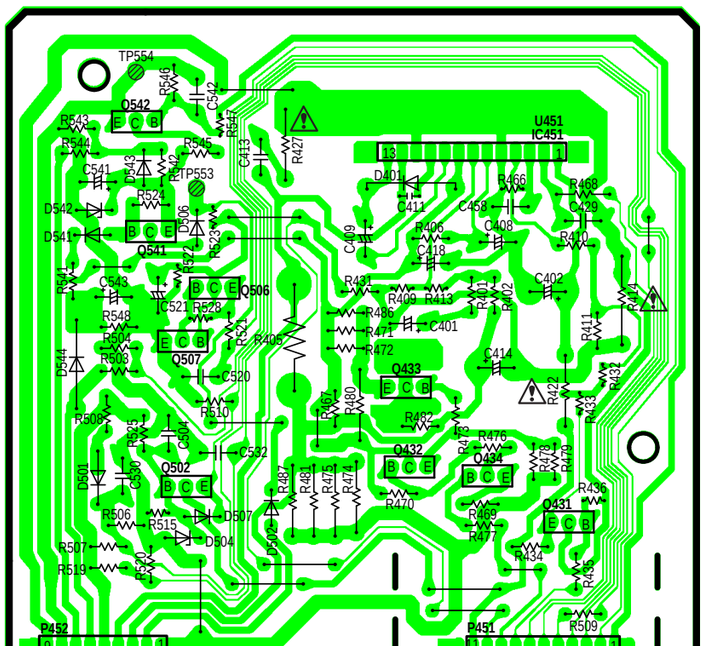
VERTICAL C.B.A. LRP63019C

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.



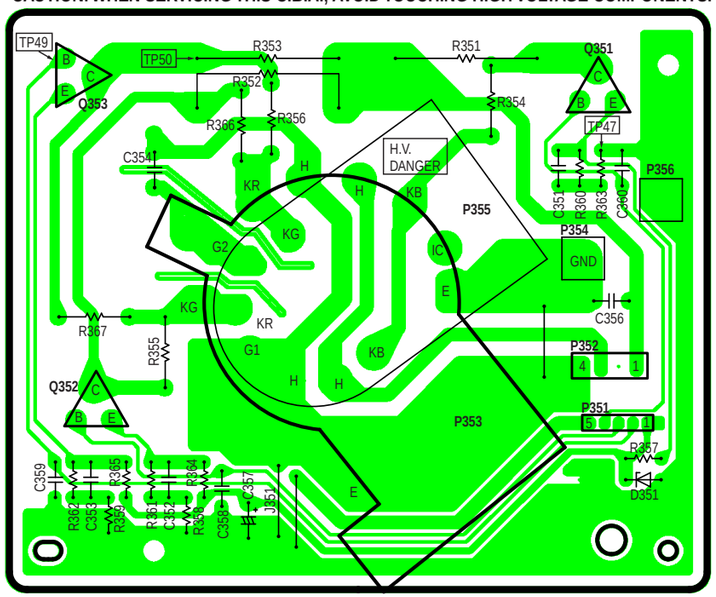
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

CRT C.B.A. LRP63005E

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

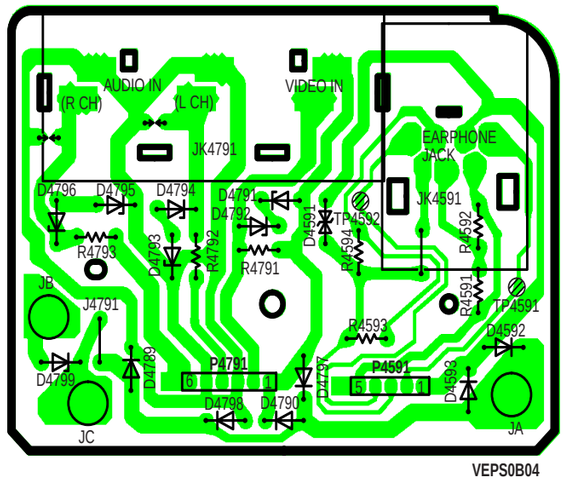
CAUTION: WHEN SERVICING THIS C.B.A., AVOID TOUCHING HIGH VOLTAGE COMPONENTS.



LRP63005

AUDIO/VIDEO JACK C.B.A. VEPS0B04A

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.



VEPS0B04

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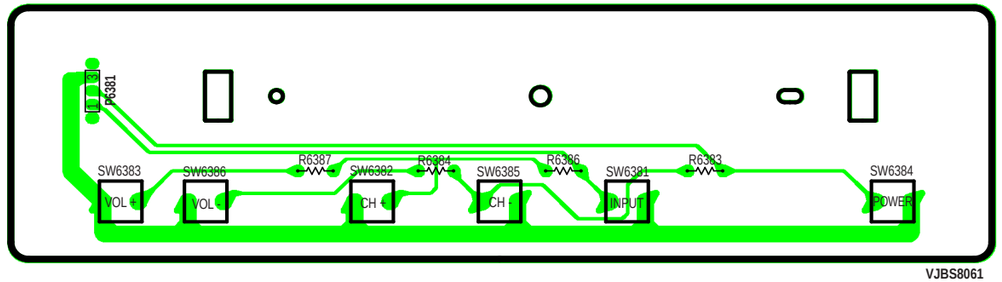
OPERATION C.B.A. VEPS8061A



VJBS8061

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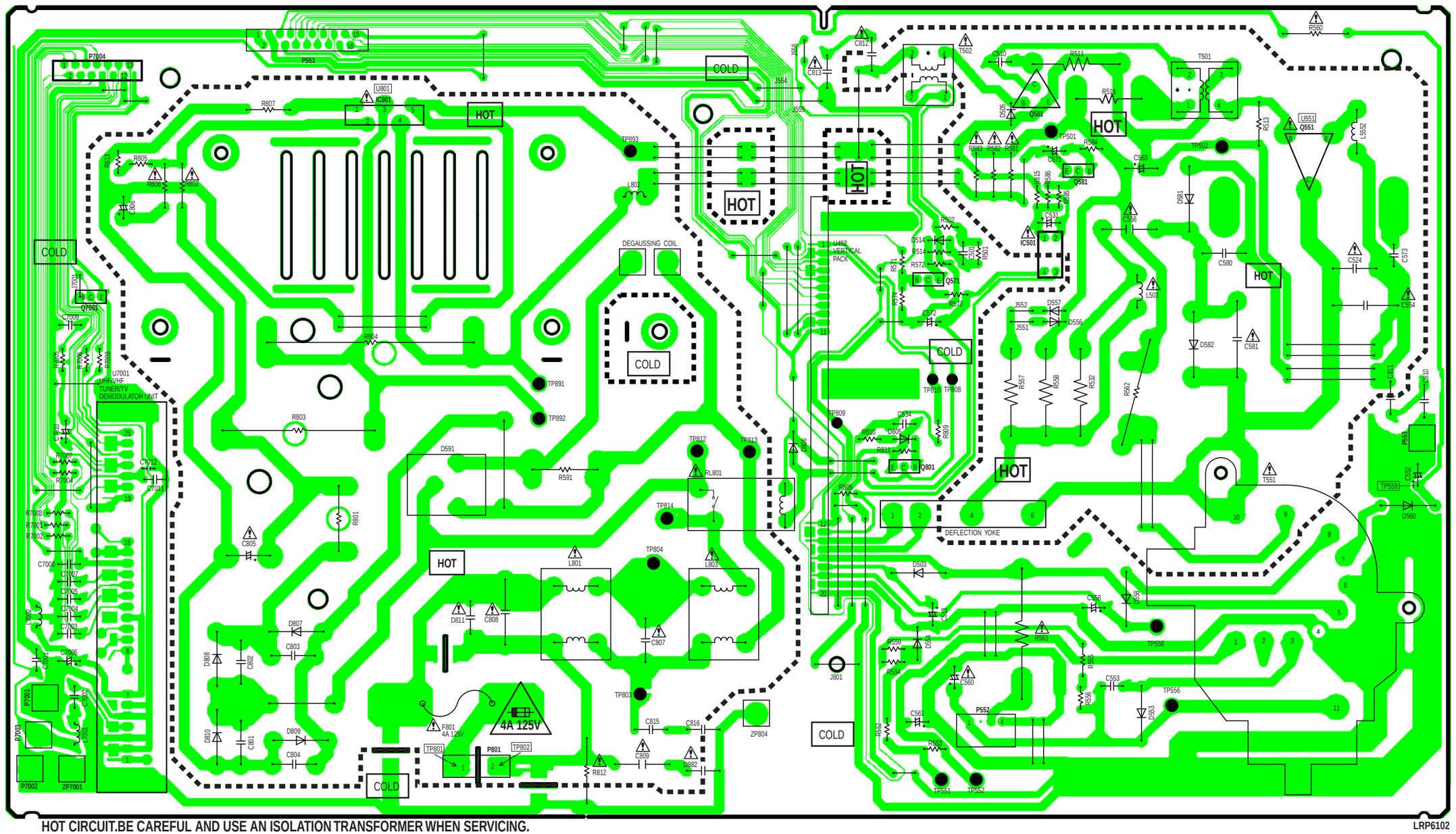


HOT CIRCUIT.BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

LRP6102

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 4A 125V

4A 125V

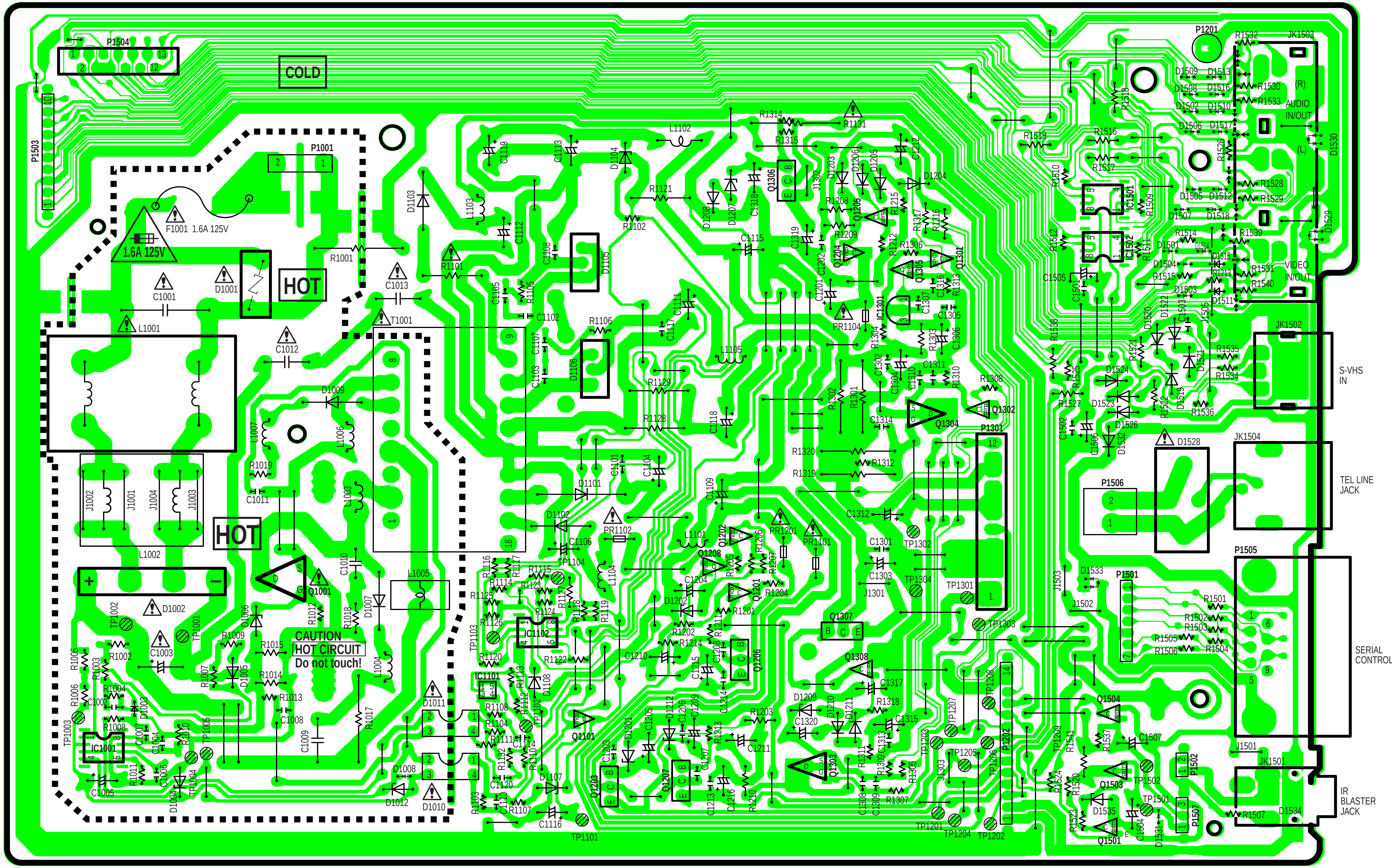
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

POWER SUPPLY C.B.A. VEPS1019A

www.manualscenter.com



HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME
TYPE 1.6A 125V

1.6A 125V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

MAIN C.B.A. VEPS3089A

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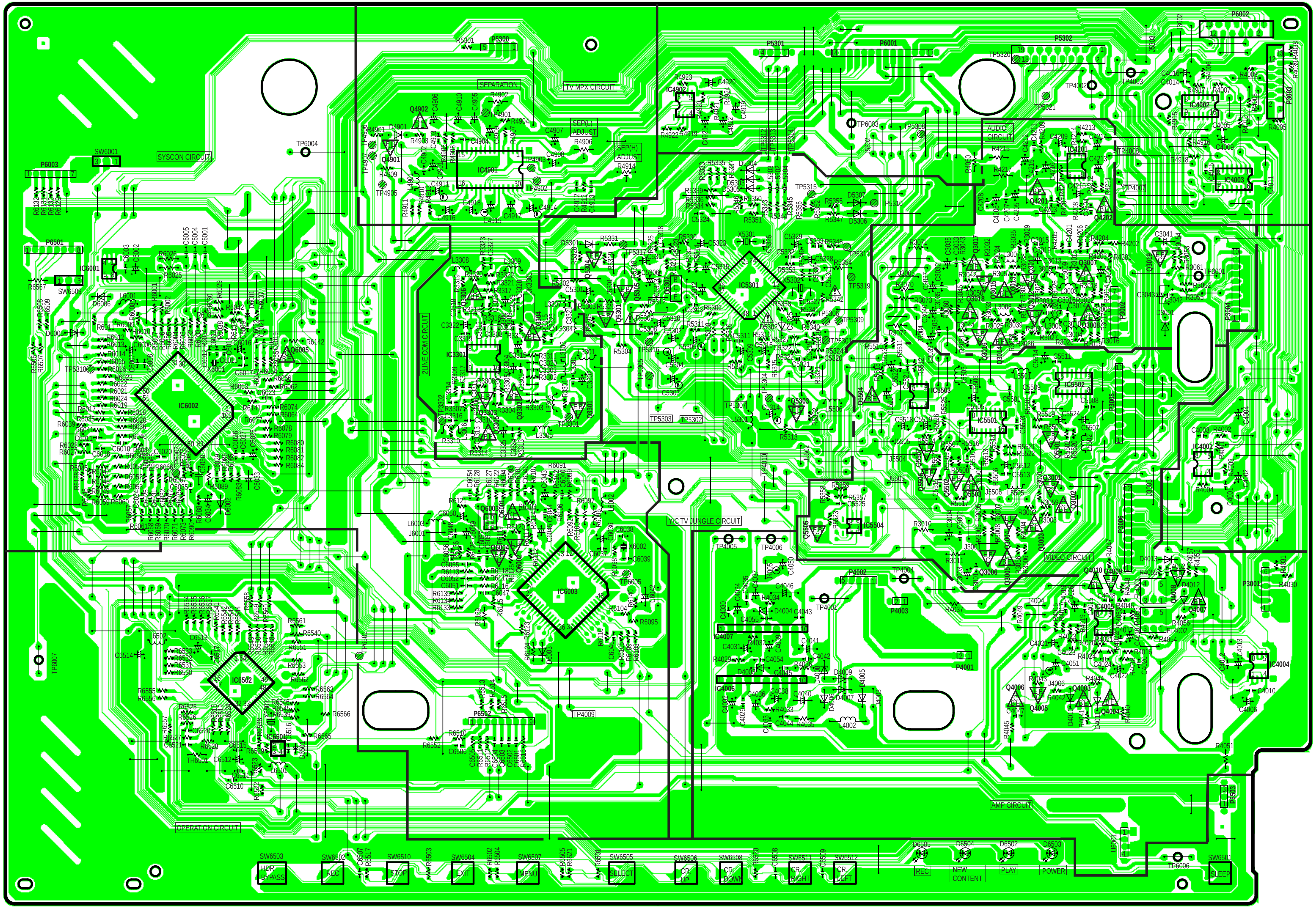
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

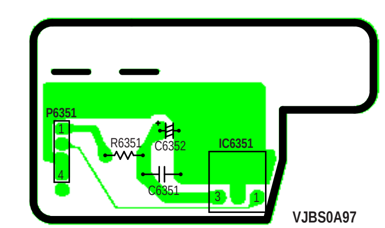
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.



SYSCON CIRCUIT
SEPARATION
TV MPX CIRCUIT
SEP(L) ADJUST
SEP(H) ADJUST
AUDIO CIRCUIT
2LINE COM CIRCUIT
Y/C TV JUNGLE CIRCUIT
VIDEO CIRCUIT
AMP CIRCUIT
OPERATION CIRCUIT
P6003
P6501
P5300
P5301
P6001
P5302
P6002
P3003
P3004
P3002
P3005
P3006
P3001
P4002
P4003
P4001
P6502
P6503
IC6001
IC6002
IC6003
IC6502
IC6501
IC4901
IC4902
IC5301
IC3301
IC4201
IC4002
IC4003
IC4001
IC4004
IC4005
IC4006
IC4007
IC5501
IC5502
IC5503
IC5504
SW6001
SW6509
SW6503 HDR BYPASS
SW6502 REC
SW6510 STOP
SW6504 EXIT
SW6507 MENU
SW6505 SELECT
SW6506 CR. UP
SW6508 CR. DOWN
SW6511 CR. RIGHT
SW6512 CR. LEFT
SW6501 SLEEP
D6505 REC
D6504 NEW CONTENT
D6502 PLAY
D6503 POWER
TP6007
TP6006
U6001
VJBS3089

INFRARED C.B.A.
VEPS0A97A



MAIN C.B.A.

TV MAIN C.B.A.

U7001 UHF/VHF TUNER/TV DEMODULATOR UNIT

IC6002 (TV MICROCONTROLLER)

+5V

41 VDD

20 RESET(L)

X6001

14.3MHz OSC

19 OSC 2

18 OSC 1

INFRARED C.B.A.

IC6351

IR RECEIVER

59 IR DATA

TO HDR BLOCK DIAGRAM

IR DATA P6502 8

IC6001 (MEMORY)

I²C SERIAL DATA 5

I²C SERIAL CLOCK 6

30 I²C SERIAL DATA

29 I²C SERIAL CLOCK

(TO FROM IC5301(44)) I²C SERIAL DATA

(TO/FROM IC5301(43)) I²C SERIAL CLOCK

TUNER CS(L) 57 — P6002 3 — P6002 3 — 13 SERIAL DATA 0

P6002 2 — P6002 2 — 14 SERIAL CLOCK

P6002 1 — P6002 1 — 12 TUNER CS(H)

OSD CS(L) 45

IC6003 (OSD/CCV MICROCONTROLLER)

29 OSD CS(L)

44 SERIAL DATA 0

43 SERIAL DATA 1

45 SERIAL CLOCK

IC6502 (SUB MICROCONTROLLER)

SERIAL DATA 0 12 — 18 SERIAL DATA 0

SERIAL DATA 1 13 — 19 SERIAL DATA 1

SERIAL CLOCK 11 — 20 SERIAL CLOCK

CS(L) 39 — 43 CS(L)

TV SUB CTS 53 — P6502 6 — TV SUB CTS

TV SUB RTS 54 — P6502 5 — TV SUB RTS

TV SUB RXD 22 — P6502 4 — TV SUB RXD

TV SUB TXD 21 — P6502 3 — TV SUB TXD

HDR RESET(L) 50 — P6502 2 — HDR RESET(L)

HDR(L)/TV(H) 54 — P6502 1 — HDR(L)/TV(H)

TO/FROM HDR SIGNAL PROCESS BLOCK DIAGRAM

IC6501

UNSW+5V — 2 RESET 1 — 36 RESET(L)

REC LED ON (L) 1 — D6505 REC

NEW CONTENT LED ON (L) 2 — D6504 NEW CONTENT

POWER LED ON (L) 3 — D6503 POWER

PLAY/DELAYED LED ON (L) 4 — D6502 PLAY/DELAYED

+5V

POWER SUPPLY C.B.A.

+5V +12V

FAN

FAN ON +8.5V — P1507 1

FAN LOCK(H) — P1507 2

GND — P1507 3

TP1501

Q1503

Q1501

Q1504

TP1502

P1202 10 — P6001 10

P1202 11 — P6001 11

W6041 R6564

R6563

47 FAN ON(L)

48 FAN ERROR(L)

+5V

KEYDATA 0 33

KEYDATA 1 32

KEYDATA 2 31

KEYDATA 3 30

KEYDATA 4 29

KEY MATRIX (SW6501 - 6508, 6510 -6512, 6381 - 6386)

0 - 0.9V	1.0 - 2.5V	2.6 - 4.1V	4.2 - 5.0V	TERMINAL VOLTAGE
POWER	CH DOWN	VOLUME DOWN	---------	OPERATION BUTTON
INPUT	CH UP	VOLUME UP	---------	
CR LEFT	CR DOWN	MENU	REC	
CR RIGHT	CR UP	EXIT	SLEEP	
STOP	SELECT	BYPASS	---------	

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MAIN C.B.A.

TO/FROM VIDEO SIGNAL PATH BLOCK DIAGRAM

3.58MHz

CHROMINANCE

LUMINANCE

W5338

TP5305

Q5303 BUFFER

W5316

TP5301

IC5301 (LUMINANCE/CHROMINANCE PROCESS)

X5301 3.58MHz OSC

VCO

CHROMINANCE SIGNAL PROCESS

LUMINANCE SIGNAL PROCESS

MATRIX

OSD CHARACTER MIX/ BLANKING

B

G

R

VIDEO SIGNAL

W4083

W4084

W4085

CRT C.B.A.

TP47

RGB AMP

Q351 BLUE AMP

Q352 GREEN AMP

Q353 RED AMP

CRT

TP49

TP50

P5301 4

P5301 3

P5301 2

P5300 5

P351 4

P351 3

P351 2

V. PULSE PROCESS

H. PULSE PROCESS

BLANKING

I²C CONTROL

(FROM IC6002(27)) I²C SERIAL CLOCK

(TO/FROM IC6002(28)) I²C SERIAL DATA

IC6003 (CCV/OSD MICROCONTROLLER)

TP6006

X6002 32KHz

DISPLAY CONTROL

OSD-R

OSD-G

OSD-B

OSD-BLANKING

VIDEO MUTE (H)

(FROM IC5503 (7)) VIDEO

Q6001 BUFFER

Q6003 COMPARATOR

Q6002

Q6004

W5304

W5303

HEATER

P552 1

P352 1

P552 3

P352 3

TV MAIN C.B.A.

VERTICAL C.B.A.

Q432,Q433,Q434 V POSITION CONTROL

IC451 (VERTICAL DEFLECTION DRIVE)

VERTICAL DEFLECTION DRIVE

Q431 BUFFER

FEED BACK CIRCUIT

VERTICAL DEFLECTION YOKE

HORIZONTAL DEFLECTION YOKE

D502

D506

Q541

D541 D544

NOT USED

D507

Q502 DRIVE

Q542

+27V

IC501, Q581 OVER CURRENT DETECTOR

(TO IC6002(82)) OVER CURRENT (H)

(FROM Q801 (C)) DISCHARGE

D503,C513 DC CONVERT

Q5302 BUFFER

D5304

Q571 BUFFER

Q501,Q551,T501, T502 HORIZONTAL DRIVE

(FROM IC801(4)) +130V

T551

FLYBACK TRANS-FORMER

VIDEO+B

HEATER

+B

COLLECTOR

ANODE

FOCUS

SCREEN

ABL

P5302 17 / P551 17 / PIN 9 / P451 9

P5302 13 / P551 13 / PIN 7 / P451 7

P5302 14 / P551 14 / PIN 8 / P451 8

P5302 18 / P551 18 / PIN 10 / P451 10

PIN 1 / P451 1

P5302 9 / P551 9 / PIN 5 / P451 5

P5302 8 / P551 8 / PIN 4 / P451 4

P5302 7 / P551 7 / PIN 3 / P451 3

P5302 12 / P551 12 / PIN 6 / P451 6

P5302 10 / P551 10

P5302 11 / P551 11

P452 4 / PIN 15

P452 3 / PIN 14

P452 2 / PIN 13

P452 5 / PIN 16

P452 6 / PIN 17

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REC AUDIO SIGNAL
PB AUDIO SIGNAL

MAIN C.B.A.

TO/FROM HDR SIGNAL PROCESS BLOCK DIAGRAM

HDR AUDIO (L) — P3002 1
HDR AUDIO (R) — P3002 3
LINE AUDIO 1(L) — P3006 6
LINE AUDIO 2(L) — P3006 9
LINE AUDIO 3(L) — P3006 12
LINE AUDIO 1(R) — P3006 5
LINE AUDIO 2(R) — P3006 8
LINE AUDIO 3(R) — P3006 11
TUNER AUDIO — P3006 3
IF — P3006 1

Q4202 BUFFER
Q4201 BUFFER
IC4201(OP AMP) AMP AMP

ΔV1 0.28 Vp-p
0.2 V 0.5 ms

W4050 W4041
TP4007 TP4008

IC4004 (OP AMP) AMP AMP
P3003 11
P3003 13
P1504 11
P1504 13
AUDIO OUT(L)
AUDIO OUT(R)
POWER SUPPLY C.B.A.

P4001 1
P4001 2
SPEAKER L-CH

AUDIO/VIDEO JACK C.B.A.
P4591 2
P4591 5
EARPHONE JACK
P4591 3
P4591 4

POWER SUPPLY C.B.A.
AUDIO IN 1(L) — IC1501(OP AMP) AMP AMP — P1504 3 — P3003 3
AUDIO IN 2(L) — P1504 7 — P3003 7
AUDIO IN 1(R) — IC1502(OP AMP) AMP AMP — P1504 5 — P3003 5
AUDIO IN 2(R) — P1504 9 — P3003 9

AUDIO/VIDEO JACK C.B.A.
AUDIO IN 3(L) — P4791 4 — P3001 4
AUDIO IN 3(R) — P4791 6 — P3001 6

IC4001(OP AMP) AMP AMP

IC4002 (INPUT SELECT)
LINE1 LINE2 LINE3 TUNER
SW CTL

IC4003 (INPUT SELECT)
LINE/TUNER HDR
SW CTL

IC4005 (OP AMP) AMP AMP

ΔV1 0.28 Vp-p
0.2 V 0.5 ms

TP4006
TP4005

Q4003 Q4004 Q4005 Q4006
Q4008 Q4007 Q4009 Q4010
+5V

IC4007 (AUDIO AMP) DC VOLTAGE CONTROL AMP
IC4006 (AUDIO AMP) DC VOLTAGE CONTROL AMP
TP4004
TP4001

(FROM IC6002(53)) HDR(H)
(FROM IC6002(55)) INPUT SELECT A
(FROM IC6002(54)) INPUT SELECT B
(FROM IC6003(47)) VOLUME CONTROL
(FROM IC6002(4)) VIDEO MUTE(H)
(FROM IC6002(42)) AUDIO MUTE(H)

P4003 2
P4003 1
SPEAKER R-CH

TV MAIN C.B.A.
UHF/VHF TUNER/TV DEMODULATOR UNIT
RF AUDIO — P7004 9 — P6002 9
SIF — P7004 10 — P6002 10

W4902
ΔV1 0.96 Vp-p
0.2 V 0.5 ms

TP4901
R4902 SEPARATION

IC4901 (MTS/SAP SIGNAL PROCESS)
MTS/SAP SIGNAL PROCESS
L-CH R-CH
MODE SELECTOR
LED DRIVE

TP4902
TP4903
IC4902(OP AMP) AMP AMP

W4054 W4049

ΔV1 0.28 Vp-p
0.2 V 0.5 ms

+5V
Q4901
Q4902

R4914 SEPARATION(H)
R4906 SEPARATION(L)

(TO IC6002(34)) SAP SIGNAL(L)
(TO IC6002(33)) MTS SIGNAL(L)
(FROM IC6002(36)) AUDIO DEFEAT(H)
(FROM IC6003(10)) MONO(H)/STEREO(L)
(FROM IC6003(9)) SAP(H)/MAIN(L)

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REC VIDEO SIGNAL
PB VIDEO SIGNAL

TV MAIN C.B.A.

MAIN C.B.A.

NOT USED
Q7001
BUFFER

UHF/VHF TUNER/TV DEMODULATOR UNIT
RF
VIDEO 25
J7001
P7004 13
P6002 13

AUDIO/VIDEO JACK C.B.A.
VIDEO IN 3
P4791 2
P3001 2

POWER SUPPLY C.B.A.
VIDEO IN 1
P1503 6
P3004 6
VIDEO IN 2
P1503 8
P3004 8
Y
P1503 4
P3004 4
S-VIDEO IN
C
P1503 1
P3004 1

IC5502 (INPUT SELECT)
TUNER 4
LINE 1 1
LINE 2 5
LINE 3 2
3
SW CTL 9 10
(FROM IC6002(55)) INPUT SELECT A
(FROM IC6002(54)) INPUT SELECT B

Q5501 BUFFER
J5505
ΔV1 1 Vp-p
0.5 V 20 µs

NOT USED
IC3301 (Y/C SEPA)
J5503
Q3304 BUFFER
4
Y/C SEPARATION
15 Y
13 C
10
Q3302 BUFFER
Q3301 BUFFER
Q3303 BUFFER
Q3305 BUFFER
Q5300 AMP
J5502
(FROM IC5301(31)) 358MHz

IC5301 (SW)
48 LINE/TUNER
1 S-VIDEO-Y
46 HDR-Y
3
I²C BUS CONTROL
43 44
(TO IC5301(41)) LUMINANCE
(TO/FROM IC6002(28)) I²C SERIAL DATA
(FROM IC6002(27)) I²C SERIAL CLOCK
TO TV Y/C PROCESS BLOCK DIAGRAM

Q3002
Q3001 BUFFER
Q3003 BUFFER
Q3004 Q3005 AMP
Q3006 BUFFER

IC5503 (SW)
1 LINE/TUNER
3 S-VIDEO
5 HDR-VIDEO
7
2 4

IC5504 (SW)
MUTE-OFF
6 5 3
Q3019 BUFFER
ΔV1 1 Vp-p
0.5 V 20 µs
TP3001
P3004 10
POWER SUPPLY C.B.A.
P1503 10
VIDEO OUT
+9V
Q5505
(FROM IC6002 (49)) VIDEO MUTE(H)

TUNER VIDEO P3005 11
LINE VIDEO 1 P3005 9
LINE VIDEO 2 P3005 7
LINE VIDEO 3 P3005 3
S-VIDEO-Y P3005 1
S-VIDEO-C P3005 5

TO/FROM HDR SIGNAL PROCESS BLOCK DIAGRAM

Q5504 BUFFER
ΔV1 2 Vp-p
0.5 V 20 µs

HDR-Y P3002 6
Q3007 BUFFER
LPF
Q3011,3013,3015 6dB AMP
W3004
ATT
Q3017 BUFFER
Q5502 AMP
Q5503 AMP

HDR-C P3002 5
Q3008 BUFFER
LPF
Q3012,3014,3016 6dB AMP
W3007
ATT
Q3018 BUFFER
ΔV1 1.4 Vp-p
0.5 V 20 µs

IC5501 (SW)
ΔV1 0.34 Vp-p
0.1 V 20 µs
12 LINE/TUNER
14 S-VIDEO-C
15 HDR-C
13
J5507
(TO IC5301(36)) CHROMINANCE
TO TV Y/C PROCESS BLOCK DIAGRAM
SW CTL 9 10

Q5506
+5V
Q5507
(FROM IC6002(52)) S-VHS(H)
(FROM IC6002(53)) HDR(H)

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TV MAIN C.B.A.

POWER SUPPLY C.B.A.

AC CORD

P801 1 / P801 2

F801 4A/125V

L801 LINE FILTER

TP804

TP803

L803 LINE FILTER

SW+12V

RL801

(TO Q542(B)) DISCHARGE

(FROM IC6002 (47)) TV POWER ON (H)

Q801

D807 ~ D810 FULL-WAVE RECTIFIER

P1001 2 / P1001 1

F1001 1.6A/125V

L1001 LINE FILTER

D1002 FULL-WAVE RECTIFIER

TP1001 HOT GND

T1001 (SWITCHING TRANSFORMER)

△V1 17.5 Vp-p, 5 V, 5 µs

△V1 330 Vp-p, 50 V, 5 µs

D1007

D1005

Q1001 (SWITCHING)

R1014 R1015

OVER CURRENT DETECTOR

D1009

D1101 RECTIFIER — L1101, C1104,1109 SMOOTHING — PR1101 — Q1203 — +5.1V TP1205 — SW+5.1V(A)

D1103 RECTIFIER — L1103,C1112 SMOOTHING — Q1306 +30V REGULATOR — +30V TP1202 — UNSW+30V

D1102 RECTIFIER — L1104,C1106 SMOOTHING — PR1102 — Q1208 — -5.2V TP1206 — SW-5.2V(A)

D1106 RECTIFIER — L1105, C1111,1118 SMOOTHING — PR1104 — Q1204 — +12.0V TP1203 — SW+12V

D1105 RECTIFIER — L1102, C1113,1115 SMOOTHING — PR1201 — +5.0V TP1201 — UNSW+5V(D)

+5.0V TP1204 — SW+5V(D)

Q1206

D1201

Q1202

D1202

Q1201

Q1205

TO MAIN CIRCUIT

OVER VOLTAGE DETECTOR

OVER VOLTAGE DETECTOR

D1104 D1107

D1008, D1012

D1010

IC1102 (COMPARATOR)

(OVER CURRENT DET ON) Q1101

D1108

(OVER CURRENT DETECTOR)

IC1001 (PWM CONTROL)

OVER CURRENT LIMIT

ON/OFF CONTROL

OVER VOLTAGE PROTECTOR

OVER CURRENT LIMIT

DRIVE

+2.465V

FEEDBACK

VCC

PWM COMPARATOR

91KHz OSC

R1005, R1006

△V1 15 Vp-p, 5 V, 5 µs

△V1 3.5 Vp-p, 1 V, 10 µs

(FEEDBACK)

D1011

IC1101 (SHUNT REGULATOR)

V-REF(2.465V)

COMPARATOR

IC1301 (RESET)

RESET MONITOR

350ms DELAY

VREF (4.375V)

Q1305 (FROM IC6502(49)) HDR POWER DOWN (H) NOT USED

Q1307,1308, D1209-1211 +12V REG.

+7.0V TP1303 — Q1207 — P1301 6

+12.0V TP1301 — Q1303 — P1301 1,2

+5.0V TP1302 — Q1304 — P1301 7,8

Q1302

Q1301

P1301 12 UNSW HDD+12V

P1301 9 UNSW HDD+5V

P1301 10,11 GND

HDD

HDR MAIN C.B.A.

IC9003 +3.3V REG. — AVCC+3.3V

IC9079 +5V REG. (P9019 6) — AVCC+5V

IC9078 +8V REG. (P9019 1,2) — AVCC+8V

IC9029 +3.3V REG. (P9019 7,8) — DVCC+3.3V

DVCC+5V

TP892 IC801 +130V REGULATOR TP891 — (TO T551 (9)) +130V

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VIDEO & AUDIO SIGNAL PATH (HDR MODE)
VIDEO SIGNAL PATH (HDR MODE)
AUDIO SIGNAL PATH (HDR MODE)
VIDEO & AUDIO SIGNAL PATH (BYPASS MODE)
VIDEO SIGNAL PATH (BYPASS MODE)
AUDIO SIGNAL PATH (BYPASS MODE)

POWER SUPPLY C.B.A.
MAIN C.B.A.
CRT C.B.A.
HDR MAIN C.B.A.
VIDEO IN 1
VIDEO IN 2
S-VIDEO IN
Y
C
AUDIO/VIDEO JACK C.B.A.
VIDEO IN 3
TV MAIN C.B.A.
UHF/VHF TUNER/TV DEMODULATOR UNIT
RF
VIDEO
AUDIO
SIF
IC4901
MTS/SAP SIGNAL PROCESS
L
R
IC4902
IC4002 (INPUT SELECT)
TUNER
LINE1
LINE2
LINE3
(L-CH)
(R-CH)
IC5502 (INPUT SELECT)
LINE1
LINE2
LINE3
TUNER
IC5301 (LUMINANCE/CHROMINANCE SIGNAL PROCESS)
LINE/TUNER
S-VIDEO
HDR
LUMINANCE SIGNAL PROCESS
CHROMINANCE SIGNAL PROCESS
MATRIX
OSD CHARACTER MIX/ BLANKING
R
G
B
RGB AMP
CRT
IC5501 (SW)
IC5503 (SW)
IC5504 (SW)
IC6003 (OSD)
OSD CS(L)
SERIAL DATA 0
SERIAL DATA 1
SERIAL CLOCK
OSD-R
OSD-G
OSD-B
OSD-BLANKING
IC4004
POWER SUPPLY C.B.A.
VIDEO OUT
AUDIO OUT(L)
AUDIO OUT(R)
SPEAKER(R)
SPEAKER(L)
AUDIO/VIDEO JACK C.B.A.
EARPHONE JACK
IC4003 (INPUT SELECT)
TUNER/ LINE
HDR
IC4005 (OP AMP)
IC4007 (AUDIO AMP)
IC4006 (AUDIO AMP)
VOLUME CONTROL
POWER SUPPLY C.B.A.
IC1501
IC1502
AUDIO IN1(L)
AUDIO IN2(L)
AUDIO IN1(R)
AUDIO IN2(R)
AUDIO/VIDEO JACK C.B.A.
AUDIO IN3(L)
AUDIO IN3(R)
IC4001
IC6002 (TV MICROCONTROLLER)
IC6502 (SUB MICROCONTROLLER)
FAN ON(L)
FAN ERROR(L)
FAN CONTROL
FAN
SERIAL DATA 0
SERIAL DATA 1
SERIAL CLOCK
CS(L)
TV SUB TXD
TV SUB RXD
TV SUB CTS
TV SUB RTS
HDR(L)/TV(H)
IR DATA
IC6001 (MEMORY)
I2C SERIAL DATA
I2C SERIAL CLOCK
SWITCHES
KEY DATA(0 - 4)
LED DISPLAY
IC6351
IR RECEIVER
IC9031 (MPEG-2 VIDEO ENCODER)
VIDEO MPEG-2 ENCODER
HOST I/F
SDRAM I/F
HOST DATA(16 BIT)
BITSTREAM DATA(8 BIT)
SDRAM DATA(32 BIT)
16MB SDRAM
IC9028, IC9037 (16MB SDRAM)
IC9021,IC9036 (LATCH)
LEVEL CONVERTER (3.3V --> 5V)
IC9020,IC9035 (LATCH)
LEVEL CONVERTER (5V --> 3.3V)
HDD
IC9069 (1MB SRAM)
64k x 24bit SRAM
IC9067 (FLASH MEMORY)
FLASH MEMORY
IC9070 (EEPROM)
EEPROM SERIAL DATA
EEPROM SERIAL CLOCK
IC9068 (MODEM DSP)
MEMORY I/F
IC9066
RING DET
RING DET(L)
OFF-HOOK(L)
IC9065 (MODEM CODEC)
A/D, D/A, AMP
MODEM SERIAL DATA
MODEM SERIAL CLOCK
DIGITAL SIGNAL PROCESS
POWER SUPPLY C.B.A.
JK1504
TEL LINE
IC9076 (DUART)
HOST I/F
CH2 SERIAL PARALLEL
CH1 SERIAL PARALLEL
DTE TXD
DTE RXD
DTE CTS
DTE RTS
DTE RI
IC9054 (FPGA)
INT. CREATE SIGNAL
CLOSED CAPTION DET, MACROVISION/CGMSA DET, IDE I/F CONTROL, MPEG2 VIDEO ENCODER CONTROL, MPEG AUDIO ENCODER CONTROL
IC9002 (IR BLASTER MICROCONTROLLER)
IR BLASTER
IR TXD
IR RXD
JK1501
IR BLASTER OUT
IC9024 (HDR MICROCONTROLLER)
IC9023 (CLOCK/ CALENDAR)
I2C SERIAL DATA
I2C SERIAL CLOCK
IC9007 (EEPROM)
EEPROM SERIAL DATA
EEPROM SERIALCLOCK
BITSTREAM DATA(8 BIT)
IC9075 (RS232C DRIVE)
RS232C RXD
RS232C TXD
RS232C RTS
RS232C CTS
DEBUG RXD
DEBUG TXD
P1505
SERIAL CONTROL (RS232C PORT)
BITSTREAM I/F
SERIAL I/F
MULTIPLEX /DE-MULTIPLEX
HOST I/F
IC9042 (VIDEO DECODER)
INPUT SELECT
A/D
DE-CODER
I2C CONTROL
VIDEO IN1
VIDEO IN2
VIDEO IN3
TUNER VIDEO
S-VIDEO-Y
S-VIDEO-C
DIGITAL VIDEO DATA (8 BIT)
IC9010 (AUDIO DAC)
SERIAL I/F
AUDIO IN1(L)
AUDIO IN2(L)
AUDIO IN3(L)
AUDIO IN1(R)
AUDIO IN2(R)
AUDIO IN3(R)
TUNER AUDIO(MONO)
SIF(SAP/STEREO)
AUDIO SERIAL DATA
LEVEL CONVERTER (5V --> 3.3V)
IC9022 (MPEG AUDIO ENCODER)
AUDIO MPEG-2 ENCODER
HOST DATA(16 BIT)
IC9027 (16MB SDRAM)
16MB SDRAM
SDRAM DATA(16 BIT)
IC9026, IC9032 (16MB SDRAM)
IC9039 (BOOT ROM)
BOOT ROM
IC9013 (VIDEO ENCODER)
HDR-Y
HDR-C
A/D
VIDEO ENCODER
YUV DATA (8 BIT)
IC9017 (MPEG-2 A/V DECODER)
OSD DISPLAY
OSD MIX
VIDEO DECODER
AUDIO DECODER
AUDIO/ VIDEO I/F
MPEG A/V DATA(8 BIT)
IC4201
HDR-AUDIO(R)
HDR-AUDIO(L)
IC9001
IC9009 (AUDIO DAC)
D/A
AUDIO SERIAL DATA

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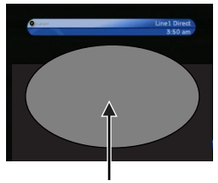
Note: Before doing troubleshooting:

1. **Confirm that a signal is being output from the input sources (Cable Box, DSS Receiver, or Antenna) and that the input sources are properly and securely connected to the unit.**
2. **If using the IR Blaster, confirm that the IR Blaster is properly affixed to the external devices (Cable Box, DSS Receiver, etc.) for CH control.**
3. **If using the Serial Cable, confirm that the Serial Cable is properly affixed to the external devices (Cable Box, DSS Receiver, etc.) for CH control.**
4. **Confirm that the QuickSetup is properly completed.**
5. **Confirm that all existing connector cables in the unit are properly and securely connected to the correct connectors on the unit.**

How to distinguish whether a problem exists in the HDR circuit (HDR Main C.B.A./HDD) or in another circuit:

Symptoms	Possible Solution
(1) **After the unit is turned on, HDR circuit does not start up properly.**	

When the unit works properly, the screen selected before turning off the unit is displayed on the TV monitor as follows.



The picture of the CH which was selected, just before power off is displayed.

Turn off the unit power, unplug the AC Power Plug, wait approx. one minute, then plug in the AC Power Plug.

Confirm that the spinning sound can be heard from the HDD after the AC Power Plug is plugged in.

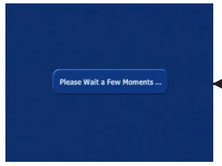
NG → HDD may be defective. Replace HDD.

Still NG → **In rare cases:** Power Supply C.B.A. is defective. Check UNSW HDD+12V and UNSW HDD+5V lines on Power Supply C.B.A. Repair as necessary.

OK

Turn on the unit by pressing the POWER button on the unit or remote control.

The following screens will be displayed on the TV Monitor in order: The blueback screen that states "Please Wait a Few Moments..." as shown below.



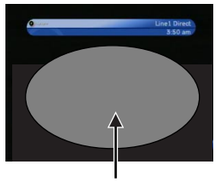
Blueback screen

Changes to the following screen automatically.

OR

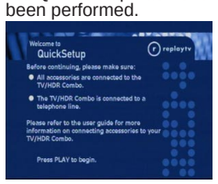
Changes to the following screen automatically when a CH has never been selected after QuickSetup.

Changes to the screen selected before turning off the unit automatically.



The picture of the CH which was selected, just before power off is displayed.

Changes to the QuickSetup screen automatically when the QuickSetup has never been performed.


Welcome to
QuickSetup
replaytv
Before continuing, please make sure:
All accessories are connected to the TV/HDR Combo.
The TV/HDR Combo is connected to a telephone line.
Please refer to the user guide for more information on connecting accessories to your TV/HDR Combo.
Press PLAY to begin.

NG(No blueback(black screen)) → Confirm that the connector cable between P3002 on Main C.B.A and P9032 on HDR Main C.B.A. is securely connected to the connector.

NG → Connect the connector cable securely.

OK

Check voltage at TP1203(+12V), TP1201(+5V) and TP891(+130V) for TV circuit on Power Supply C.B.A.

NG → Power Supply C.B.A. is defective. Repair Power Supply C.B.A.

OK

Check if blueback signal from HDR Main C.B.A. is output to Pin 5 and 6 of P3002 on Main C.B.A.

NG → HDR Main C.B.A. is defective. Replace HDR Main C.B.A.

OK

Main C.B.A. is defective. Repair Main C.B.A.

NG ("Please Wait a Few Moments..." is not displayed) → HDR Main C.B.A. is defective. Replace HDR Main C.B.A.

NG (TV monitor does not change from "Please Wait a Few Moments...") → HDR Main C.B.A. or HDD is defective. Replace HDR Main C.B.A. and HDD.

NG (The following symptom occurs frequently: After displaying "Please Wait a Few Moments...", **resets** once, and then starts up properly.) → HDR Main C.B.A. may be defective. Replace HDR Main C.B.A.

Still NG → **In rare cases:** Main C.B.A. is defective. Check conductivity of line between IC6502 (Pin 21, 22, 53, 54, and 50) and P6502 connector (Pin 3, 4, 6, 5, 2) on Main C.B.A. (There are some 100 ohm resistors. (R6501, R6511, etc.)) Repair or replace necessary.

NG (After displaying "Please Wait...", the system continually **resets** and redisplays the same message.) → HDR Main C.B.A. or HDD is defective. Replace HDR Main C.B.A. and HDD.

reset:
The screen is changed to the black screen, then to the "Please Wait a Few Moments..." screen.

OK

After the picture of the CH which was selected, just before power off is displayed, change from the current input mode to another by pressing INPUT button. Then, input video signal to selected input jack. Confirm that "Please Wait a Few Moment..." is NOT displayed on the TV monitor and selected input video is displayed on the TV monitor.

NG (After displaying "Please Wait...", the system continually **resets** and redisplays the same message.) → HDR Main C.B.A. is defective. Replace HDR Main C.B.A.

NG (Selected input video is not displayed on the TV monitor.) → Do the video/audio check, refer to symptom(2).

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(2)

Symptoms

No Video on the TV monitor and/ or No Audio from the Speaker.

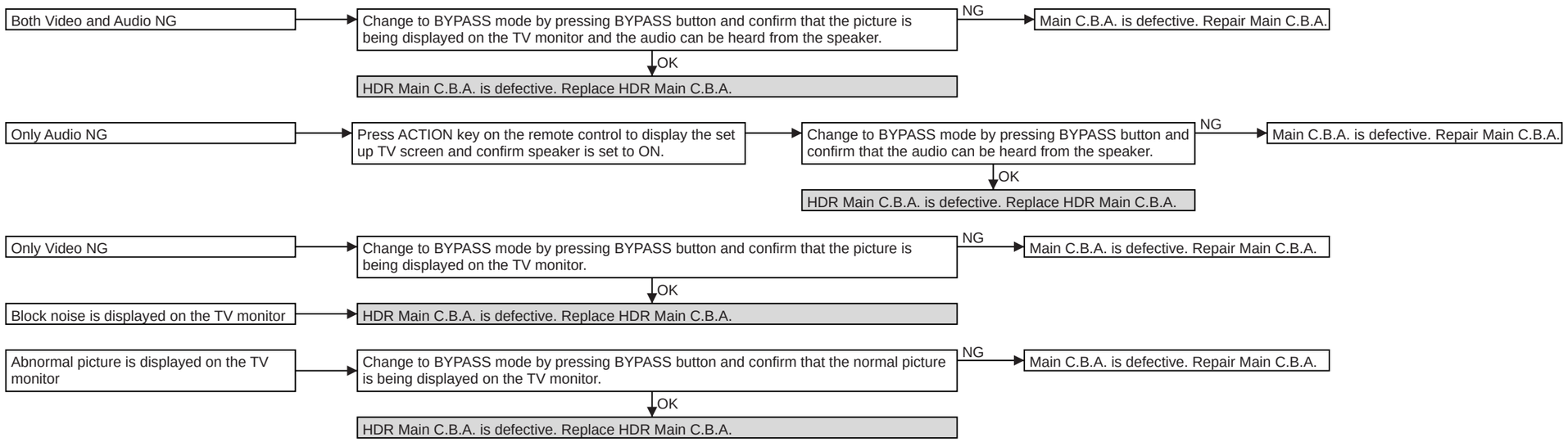
OR

Block noise is displayed on the TV monitor.

OR

Abnormal picture is displayed on the TV monitor.

Possible Solution


Both Video and Audio NG
Change to BYPASS mode by pressing BYPASS button and confirm that the picture is being displayed on the TV monitor and the audio can be heard from the speaker.
NG
Main C.B.A. is defective. Repair Main C.B.A.
OK
HDR Main C.B.A. is defective. Replace HDR Main C.B.A.
Only Audio NG
Press ACTION key on the remote control to display the set up TV screen and confirm speaker is set to ON.
Change to BYPASS mode by pressing BYPASS button and confirm that the audio can be heard from the speaker.
NG
Main C.B.A. is defective. Repair Main C.B.A.
OK
HDR Main C.B.A. is defective. Replace HDR Main C.B.A.
Only Video NG
Change to BYPASS mode by pressing BYPASS button and confirm that the picture is being displayed on the TV monitor.
NG
Main C.B.A. is defective. Repair Main C.B.A.
OK
Block noise is displayed on the TV monitor
HDR Main C.B.A. is defective. Replace HDR Main C.B.A.
Abnormal picture is displayed on the TV monitor
Change to BYPASS mode by pressing BYPASS button and confirm that the normal picture is being displayed on the TV monitor.
NG
Main C.B.A. is defective. Repair Main C.B.A.
OK
HDR Main C.B.A. is defective. Replace HDR Main C.B.A.

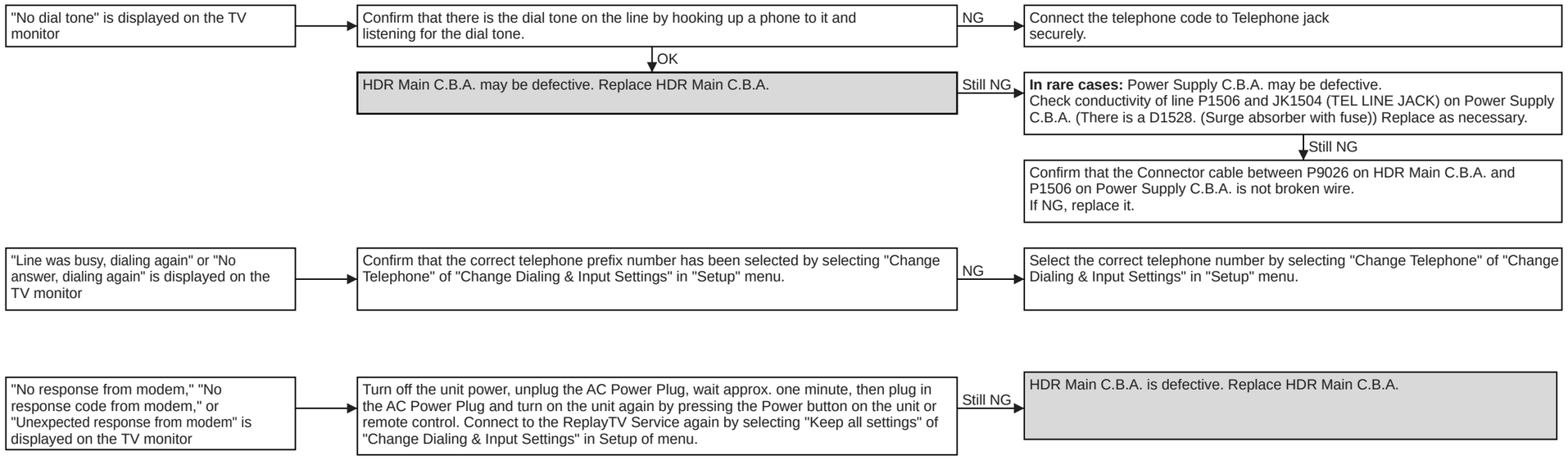
(3)

When attempting to connect to the ReplayTV Service, the following error messages is displayed on the TV monitor:

<Error message>
"No dial tone"
"Line was busy, dialing again"
"No answer, dialing again"
"No response from modem"
"No response code from modem"
"Unexpected response from modem"

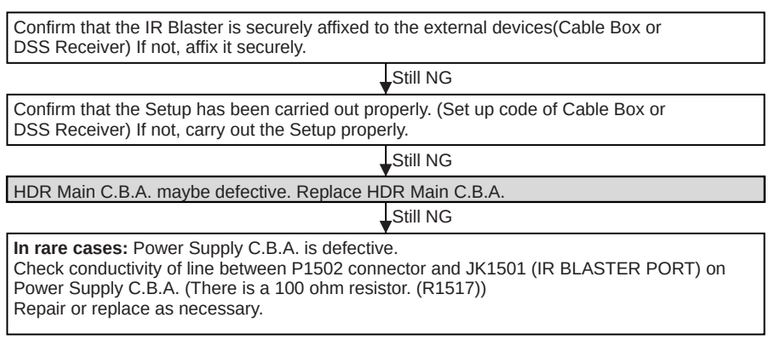
A phone call is made to the ReplayTV Service during QuickSetup, each night automatically, and by selecting "Keep all settings" of "Change Dialing & Input Settings" in Setup of menu.

If the communication is made successfully, "Connection established" is displayed on the TV monitor.


"No dial tone" is displayed on the TV monitor
Confirm that there is the dial tone on the line by hooking up a phone to it and listening for the dial tone.
NG
Connect the telephone code to Telephone jack securely.
OK
HDR Main C.B.A. may be defective. Replace HDR Main C.B.A.
Still NG
In rare cases: Power Supply C.B.A. may be defective.
Check conductivity of line P1506 and JK1504 (TEL LINE JACK) on Power Supply C.B.A. (There is a D1528. (Surge absorber with fuse)) Replace as necessary.
Still NG
Confirm that the Connector cable between P9026 on HDR Main C.B.A. and P1506 on Power Supply C.B.A. is not broken wire.
If NG, replace it.
"Line was busy, dialing again" or "No answer, dialing again" is displayed on the TV monitor
Confirm that the correct telephone prefix number has been selected by selecting "Change Telephone" of "Change Dialing & Input Settings" in "Setup" menu.
NG
Select the correct telephone number by selecting "Change Telephone" of "Change Dialing & Input Settings" in "Setup" menu.
"No response from modem," "No response code from modem," or "Unexpected response from modem" is displayed on the TV monitor
Turn off the unit power, unplug the AC Power Plug, wait approx. one minute, then plug in the AC Power Plug and turn on the unit again by pressing the Power button on the unit or remote control. Connect to the ReplayTV Service again by selecting "Keep all settings" of "Change Dialing & Input Settings" in Setup of menu.
Still NG
HDR Main C.B.A. is defective. Replace HDR Main C.B.A.

(4)

Can not control the CH of Cable Box or DSS Receiver by using the IR Blaster.


Confirm that the IR Blaster is securely affixed to the external devices(Cable Box or DSS Receiver) If not, affix it securely.
Still NG
Confirm that the Setup has been carried out properly. (Set up code of Cable Box or DSS Receiver) If not, carry out the Setup properly.
Still NG
HDR Main C.B.A. maybe defective. Replace HDR Main C.B.A.
Still NG
In rare cases: Power Supply C.B.A. is defective.
Check conductivity of line between P1502 connector and JK1501 (IR BLASTER PORT) on Power Supply C.B.A. (There is a 100 ohm resistor. (R1517))
Repair or replace as necessary.

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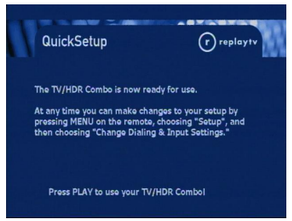
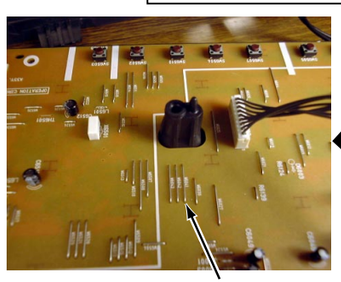
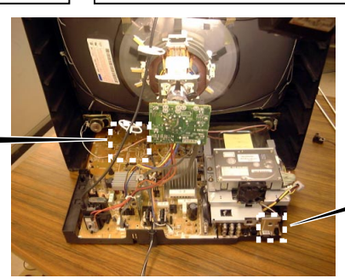
	Symptoms	Possible Solution
(5)	**Can not control the CH of Cable Box or DSS Receiver by using the Serial cable.**	Confirm that the Serial Cable is securely connected to the external devices(Cable Box or DSS Receiver) If not, connect it securely. ↓ Still NG Confirm that the Setup has been carried out properly. (Set up code of Cable Box or DSS Receiver) If not, carry out the Setup properly. ↓ Still NG HDR Main C.B.A. maybe defective. Replace HDR Main C.B.A. ↓ Still NG **In rare cases:** Power Supply C.B.A. may be defective. Check conductivity of line between P1501 connector and P1505 (SERIAL CONTROL PORT on Power Supply C.B.A. (There are some 100 ohm resistors. (R1501, R1502, etc.)) Repair or replace as necessary.
(6)	**Can not operate the unit by using the remote control:** TV functions: (Vol up/Down, Sleep, Mute, Action, Night, C.C.) HDR functions: (Menu, Exit, etc.)	Can not operate both the TV and HDR functions. → Main C.B.A. is defective. Check IC6351(Remote sensor) and surrounding parts. Repair or replace as necessary. Can not operate the TV functions only. → Main C.B.A. is defective. Check conductivity of line between IC6351(Remote sensor) and Pin59 of IC6502 on Main C.B.A. Repair as necessary. Can not operate the HDR functions only. → HDR Main C.B.A. may be defective. Replace HDR Main C.B.A. ↓ Still NG **In rare cases:** Main C.B.A. is defective. Check conductivity of line between Pin 1 of IC6351 and Pin 8 of P6502 on Main C.B.A. (There is a 100 ohm resistors. (R6516)) Repair or replace as necessary.
(7)	**The EPG can not be displayed at all on the TV monitor.** **OR** **The latest EPG can not be displayed on the TV monitor.**	Connect to the ReplayTV Service by selecting "Keep all settings" of "Change Dialling & Input Settings" in Setup of menu. → OK ("Connection established" is displayed.) → Wait until the connection is complete. The following screen is displayed when it is complete. → Turn off the unit power, unplug the AC Power Plug, wait approx. one minute, then plug in the AC Power Plug and turn on the unit again by pressing the Power button on the unit or remote control. → Press Channel Guide button on the remote control or select "Channel Guide" in the "Main Menu." Then, confirm that the displayed time on the TV monitor is the correct time as shown below. → NG → HDR Main C.B.A. is defective. Replace HDR Main C.B.A. ↓ Error messages("No dial tone", etc.) is displayed Modem circuit is defective. Do the Modem check, refer to symptoms (3).
(8)	**The "FAN LOCK DETECTED PLEASE REFER TO MANUAL" massage is displayed on the TV monitor.** **(HDR circuit is not defective.)**	Check if Fan connector (3 pins) is correctly installed to P1507 connector on Power supply C.B.A. → OK → Check voltage at Pin 1 of P1507 on Power supply C.B.A. <----- (FAN ON +8.5V) → approx. +8.5V → Check voltage at Pin 2 of P1507 on Power supply C.B.A. <----- (FAN LOCK(H)) → approx. 0V → Check the parts(Q1504, R6565, R6563, etc) on signal line between Pin 2 of P1507 on Power Supply C.B.A. and Pin 48 of IC6502 on Main C.B.A. Replace as necessary. ↓ NG Install Fan connector correctly. ↓ approx.0V Check if voltage at W6041(R6564) on Main C.B.A. is approx. 0V. <----- (FAN ON(L)) ↓ approx.+5V Fan is defective. Replace Fan. ↓ OK Check Q1501 and Q1503 on Power supply C.B.A. Replace as necessary. ↓ NG Check IC6502 and R6564 on Main C.B.A. Replace as necessary.

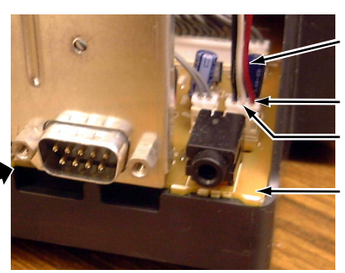

QuickSetup
replaytv
The TV/HDR Combo is now ready for use.
At any time you can make changes to your setup by pressing MENU on the remote, choosing "Setup", and then choosing "Change Dialing & Input Settings."
Press PLAY to use your TV/HDR Combo!

The time is displayed.



W6041





Fan connector

Pin1 of P1507

Pin2 of P1507

Power Supply C.B.A.

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